Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

Vol. 4. New York, April 28, 1849. No. 32.

THE
Scientific American.
THE
BEST MECHANICAL PAPER IN THE WORLD.
CIRCULATION 12,000.
PUBLISHED WEEKLY.
At 128 Fulton Street, New York (Sun Building,) and 13 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.
Barlow & Payne, Agents, 89 Chancery Lane, London.

TERMS---$2 a year---$1 in advance, and the remainder in 6 months.

Poetry.

THE LIFE CLOCK.

TRANSLATED FROM THE GERMAN.

There is a little mystic clock,
No human eye hath seen ;
That beateth on—and beateth on,
From morning until e'en.

And when the soul is wrapped in sleep,
And heareth not a sound,
It ticks and ticks the live-long night,
And never runneth down.

O, wonderous is the work of art,
Which knells the passing hour,
But art ne'er formed, nor mind conceived,
The life-clock's magic power.

Nor set in gold, nor decked with gems,
By pride and wealth possessed ;
But, rich or poor, or high or low,
Each bears it in its breast.

When life's deep stream, 'mid bed of flowers,
All still and softly glides,
Like the wavelet's step, with a gentle beat,
It warns of passing tides.

When passion nerves the warrior'sarm
For deeds of hate and wrong,
Though heeded not, the fearful sound,
The knell is deep and strong,

When eyes to eyes are gazing soft,
And tender words are spoken,
Then fast and wild it rattles on,
As if with love 'twere broken.

Such is the clock that measures life,
Of flesh and spirit blended ;
And thus 'twill run within the breast,
Till that strange life is ended.

LIVE THEM DOWN.

Brother, art thou poor and lowly,
Toiling, drudging day by day,
Journeying painfully and slowly,
On thy dark and desert way ?
Pause not—though the proud ones frown !
Sink not, fear not—Live them down !

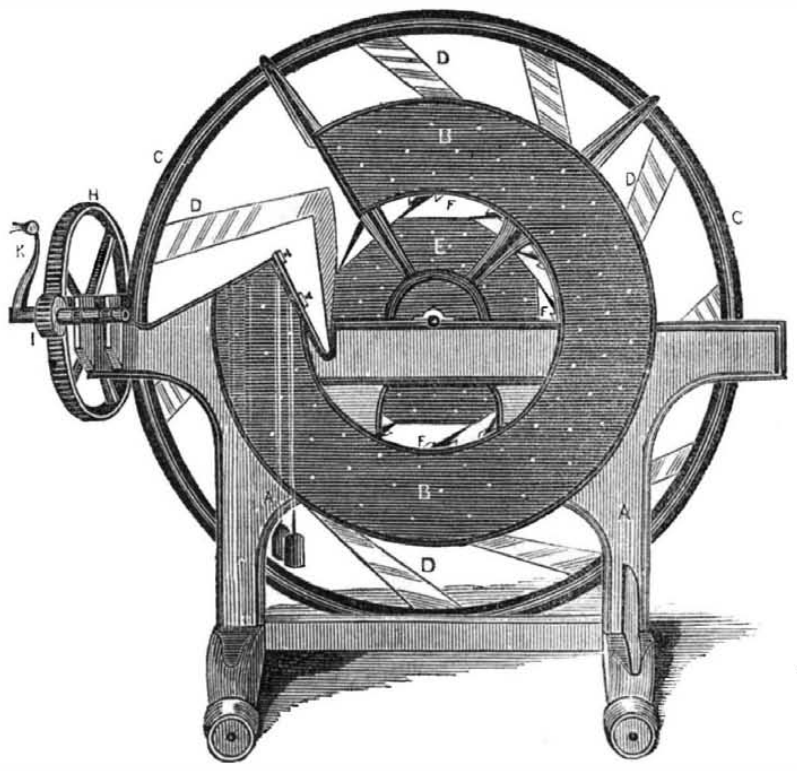
Though to Vice thou shalt not pander,
Though to Virtue thou shalt kneel,
Yet thou shall escape not Slander—
Jibe and lie thy soul must feel—
Jest of witling—curse of clown—
Heed not either !—Live them down !

Hate may wield her scourges horrid,
Malice may thy woes deride ;
Scorn may bind with thorns thy forehead—
Envy's spear may pierce thy side !
Lo ! though Cross shall come to Crown !
Fear not foemen !—Live them down !

For Mending Steam Boilers, &c.

Mix two parts of finely powdered litharge with one part of very fine sand, and one part quicklime, which has been allowed to slack spontaneously by exposure to the air. The mixture may be kept for any length of time without injury. In using it a portion is mixed into a paste with linseed oil, or still better boiled linseed oil. In this state it must be quickly applied, as it soon becomes hard.

REVOLVING BOOT CRIMPING MACHINE.



This is a Boot Crimping Machine, invented and patented by Mr. John E. Tucker, and rights for Towns, Counties and States are now offered for sale by Messrs. C. H. Taggard & Co. No. 17 Haverhill st. Boston. They have also made arrangements to manufacture and sell this useful machine.

A, is a frame on which this machine is erected. There are two sets of boot forms on the machine and two series of uppers are crimped at the same time—one set on each side, both of which are alike. B, are two metal plates, (only the outside one seen.) These plates are stationary and form an annular chamber between them. Projecting into the inside of this chamber are a number of spring jaws, the heads of which are represented by the light dots. The inner ends of these jaws are denoted by F F F. D, represents the crimpers, which are of the same nature nearly as a die block. The cut leather for the boot upper is placed between the cheeks indicated by the two set screws, and the two weights that are suspended are to hold the upper plate of the cheeks to keep the wet uncrimped leather smoothly in its place. C, is the revolving wheel to which the boot forms or crimpers are firmly secured. When the leather is placed in the cheeks over the mouth of the annular chamber, the wheel is turned round, which forces D into the annular chamber pressing in the leather out of the cheeks, it being held only by a sufficient weight to keep it smooth to the action of D, to prevent wrinkles. The spring jaws F, press gently but gradually, the leather close into the boot forms D, laying it smooth and perfect on the form. K, is the crank handle. I, a pinion gearing into the cog-wheel H.

That this machine is a good one, no one will doubt, that is self evident. It has been in operation and proved by some of the most experienced boot manufacturers and crimpers in New England. It has, in the hands of a good crimper, after he had got into the manner of using it, performed in one day, as much as three men could do in the usual way.

Interesting Geological Fact.

Professor Aggassiz, in a recent lecture, stated an interesting fact, in connection with his remarks upon the family of the rose, which includes among its varieties not only many of the most beautiful flowers which are known, but also the richest fruits, such as the apple, pear, peach, plum, apricot, cherry, strawberry, rasberry, blackberry, &c—viz. that no fossils belonging to this family have ever been discovered by geologists. This is regarded as conclusive evidence that the introduction of this family of plants upon earth was coeval with or subsequent to the creation of man.

The Power of the Muscular System.

The number, variety and power of the motions capable of being produced by these muscles are indeed most wonderful, as all have seen and experienced. They enable us to climb the lofty tree, and even the smooth pole of liberty ; to mount the towering mast, and not only support ourselves in the rigging of the ship, but to put forth great muscular exertion while she is tossing and rolling, and pitching, and that in the midst of the hurricane. Standing upon our feet, we can toss our bodies, weighing from 100 to 200 pounds several feet upward and forwards, and in all directions for many hours in succession, as in dancing and the circus. Or we can transport it fifty or sixty miles between sun and sun, and even carry many pounds weight upon our backs. Or we can chase down the fleetest animal that runs. Or we can labor briskly every day, for scores of years. Or we can lift and carry several times our own weight. Or we can accomplish a multiplicity of powerful and protracted bodily exertions, and do a variety and amount of things almost without end.

The Tides in the German Ocean.

A striking example occurs to us of the happy connection of theory with observation in the prediction that there must exist a spot in the German Ocean, the central point of an area of rotation produced by the meeting and mutual action of two opposite tides, where no rise or fall of tide whatever could occur—a prediction actually verified by Capt. Hewett, in 1839, without any prior knowledge that such a point had been supposed to exist. This is one among the many triumphs of like kind achieved by modern science.

True glory consists in doing what deserves to be written—writing what deserves to be read and making the world the happier and the better for having lived in it.

RAILROAD NEWS.

Railroads.

In Massachusetts there are 32 finished railroads of an aggregate length of 1,047 miles, of which 217 miles are provided with a double track. The average of their dividends last year was 7 2-3 per cent, in 1847 it exceeded 8 per cent. The average speed of the passenger trains in Massachusetts has been 23.13 miles, and of the freight trains 12.35 miles per hour. In New York the average speed of the passenger trains has not exceeded 13 miles per hour, but is fast increasing.

In New York there are 982 miles of railroad, average dividends 3½ per cent, in 1848, showing these works in New York, to be vastly less profitable than in Massachusetts But the roads many of them are being relaid with good rail and their profits will vastly increase.

In Vermont and New Hampshire there are about 500 miles of railroad finished and in progress.

In Connecticut there are 410 miles of railroad. The average dividend last year was only about 2 per cent.

The number of miles of finished railroad throughout the Union is 6,500. and about as much more in progress, at an average cost of $30,000 per mile.

In England there are 4,500 miles of railroad completed at an average cost of $150,000 per mile, all of it with a double track. The gross receipts of the English railroads in 1848 were $52,000,000; the nett income or dividend 4 1-4 per cent.

In England the average speed of the express trains is 45 miles per hour, this speed is the rule not the exception, some trains have been run at the rate of 65 and some more. The older our roads become, we will increase in speed, for we only want good tracks to equal England.

Railroad Sold.

The Hagerstown (Md.) News, of Wednesday says :—" That portion of the Franklin Railroad lying in this county, between this place and Pennyslvania line, was, on yesterday, sold by Sheriff South to Colonel George Schley, of this place, for $6000. It is about 6 miles of the road, the construction of which cost about $20,000 per mile.

Germantown Railroad.

Towards the close of the Pennsylvania Legislative session, an act was passed supplementary to the act incorporating the Philadelphia, Germantown and Norristown Railroad Company, which authorises the company to form a connexion between their road and the Reading Railroad, at any point between Nicetown and the Schuylkill bridge.

Pennsylvania Central Railroad Meeting.

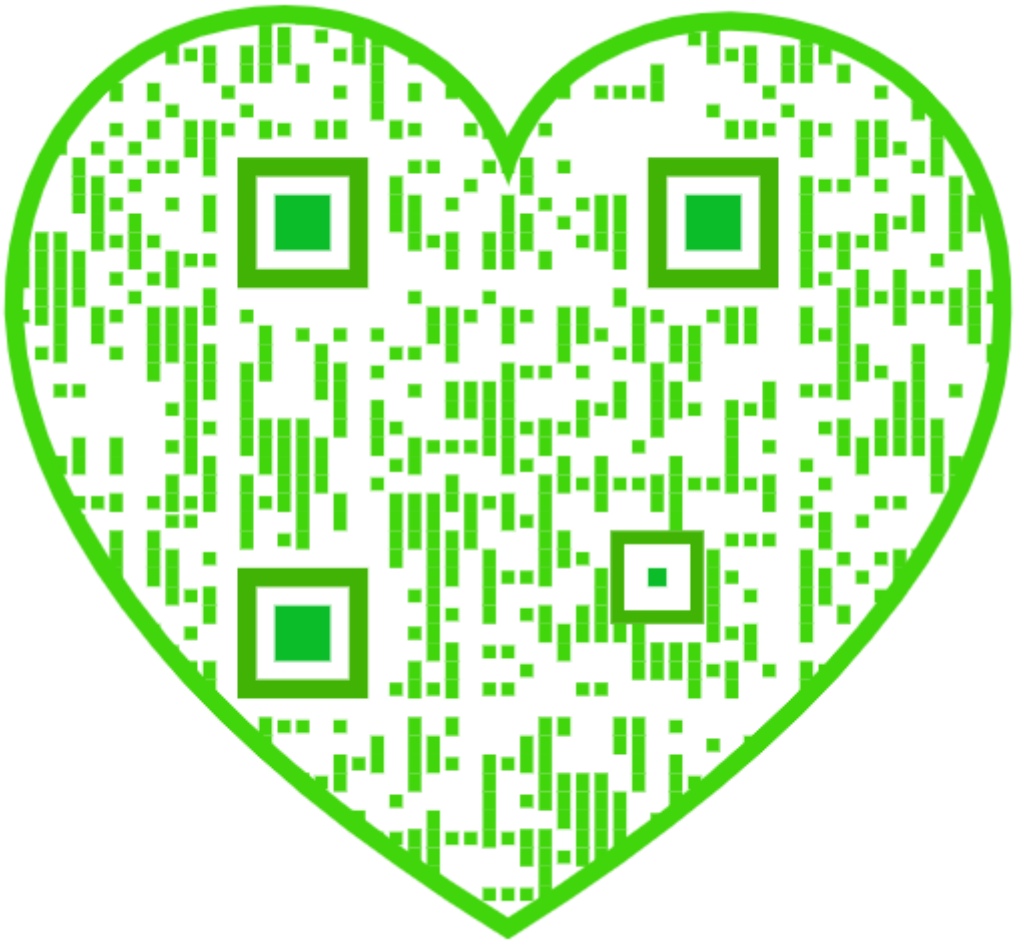
A meeting was held last week in the Room of the Board of Trade, Philadelphia, to adopt measures to complete the Central Rail Road, when it was resolved among other resolutions, that a Committee of eight citizens be now appointed to make a personal application to all the moneyed corporations of the City and County, and urge upon them the policy and propriety of lending liberal aid to the enterprise.

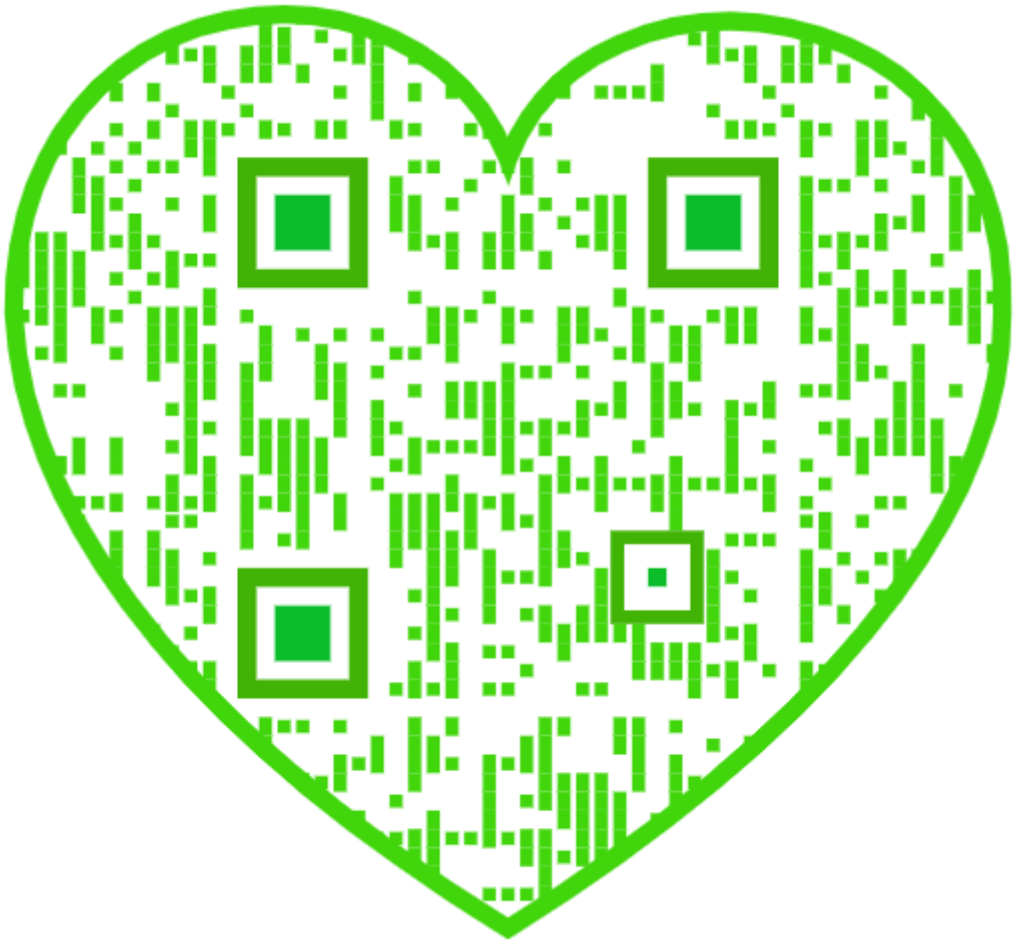
A Canal Boat Weathering a Gale.

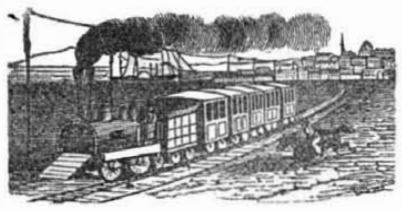
A canal boat was recently washed into the lake at Cleveland, Ohio, during the night, with but one man on board ; he, like an old salt, split all the lines on board, attached them to the cooking stove ; threw it overboard as an anchor, and rode the waves of the lake safely until assistance was furnished him next morning.

We learn from the Wilmington (N. C.) Commercial that the insect which destroyed the turpentine trees last year to such a great extent, has again commenced its ravages.

© 1849 SCIENTIFIC AMERICAN, INC







Our Prize Essay.

The first part of our Prize Essay on the Patent Laws, will be found on the last page of this number, and on the similar page of a few succeeding numbers the rest of it will also be published. We hope that every inventor will give the Essay a careful perusal and we shall be happy to receive any remarks from our subscribers, if briefly and fairly written, that may have been suggested by this Essay or by other causes, on what they may deem of benefit to inventors, as an amendment to the present Patent Laws. The Essay has cost us one hundred dollars, and we hope that our patrons will appreciate our humble efforts to protect the inventor and ingenious man in the rightful fruit of his genius and labor. We shall send copies of the Scientific American to every newspaper in the United States, that all those who feel an interest in the advancement of Science and Art, and whose sympathies are with inventors, may make such remarks upon, or publish it as they think best. Every inventor responds with us in calling the attention of the powerful and enlightened Press of our country to this subject. It is an undeniable fact, that those countries which stand highest in the scale of civilization, are the most distinguished for mechanical genius and invention, and surely this fact is strong evidence of mechanical invention being a powerful lever to advance civilization. This being true, inventors should surely be encouraged and fully protected. Our heart is in this work because we know that they have not been encouraged nor protected by law. There is not a single patent in our country that has been fully sustained at law but had to seek the shelter of the all powerful wing of associated wealth and influence. We are convinced that inventors' Conventions are out of the question—utterly ineffectual to do any good. We want *Good Laws* rigidly enforced, and not combinations for Protection, more especially as all such Conventions that have existed, embraced in their membership men who had only selfish objects in view.

We shall issue several thousand extra copies of the Scientific American containing the Essay, and those who desire to furnish their friends with the numbers will be supplied at $2,75 per hundred. Some clubs may be made up to do this at but little cost to each.

New Planing Machine.

Mr. H. Law, of Wilmington, N. C. has just obtained a patent for a new Planing Machine, which is highly recommended. The board is carried forward under a succession of stationary cutters by a rapid succession of blows from a crank and fly wheel—giving to the board a sudden forward motion—like the push of the hand plane, which is quite favorable to smooth planing, and the effect is said to be good. A machine is now in operation in New Haven, and one is now in progress of construction and will be put in operation in this city as soon as built. We shall be able to present our readers with an engraving of the machine in a few weeks. Mr. Law is now at 216 Pearl st. this city. See advertisement.

Mechanics Agency.

We would call the attention of our readers to the advertisement of Messrs. Norcross & Co. as being worthy of examination. We are personally acquainted with them and believe their arrangements to be such as will be appreciated by every one, especially those who are in want of any kind of machinery. Our readers may rest assured that they will be well dealt with by them in any business that may be intrusted to them, as we know them to be men of experience. Their office is at No. 60 Nassau st.

An Aberdeen (Scotland,) paper states, that while the prayer book, together with all the clothes of a deceased cholera patient, were carefully burnt, six £1 notes found on his person were religiously perserved.

Boiler Explosions.

The following is an extract from an article in the Rhode Island Journal, which seems to corborate the views of "Evens," in our last week's number.

If so vast a proportion of steam boiler explosions really originate in "low water," as seems to be generally supposed, the public ought to know it, in order to relieve them from dread of fatal accidents from other sources, and that this cause may, in some way, find an effectual remedy. If not the more caution should be employed on other points. As the case now stands, if I am not very much in error, not a solitary report has ever yet been made, either in the United States, or in Europe, in which a committee have gone so far as to say they knew, or had ascertained to a certainty, that the explosion reported on, was occasioned by "low water." After all the investigation of the subject, by eminent scientific men, I believe no one of them has ventured to say that explosions, or any one of them were or was doubtless the result of such a cause. Professors Silliman and Hare, on a committee of investigation in a certain case, did go so far as to say such a thing "might possibly be;" and Professor Hare could account for the possibility, only on another supposed possibility, that hydrogen gas, generated from water coming into contact with red hot iron, might ignite and explode. Yet Professor Hare in common with all other scientific chemists, had previously said and written that hydrogen could not be ignited, except in presence of atmospheric air or oxygen gas. If the committee which investigated the case on the Boston and Providence railroad, have arrived at new facts in connexion with this subject, developed any heretofore hidden principles, on which scientifically, they can account for steam boiler explosions, as the result of low water—or, if they can show to a demonstration, from unquestionable facts, that such was the cause of the particular explosion alluded to above, they will fill out an important hiatus in scientific lore, which will confer a great favor on many.

Treasury of Moolton.

The treasure discovered in the subterranean chambers of the citadel appear to be altogether of oriental magnificence and Asiatic profusion. Descending into the cavities in which the treasures of the fortress have been accumulated, the inspecting officer is said to have found opium and indigo, and salt, sulphur, and drugs of every description heaped together in endless profusion; enormous hoards of wheat on one hand, on the other almost inexhaustable stores of rice; stacks of ghee vessels briming with their unctious contents; bales upon bales of costly shawls and gorgeous silks; chest after chest crammed with scabbards, blazing with gold and jewels; tiers of copper canisters filled to the brim with gold mohurs. "My poor pen," says a correspondent of the Delhi Gazette, "cannot describe the variety of wealth displayed to the inquisitive eye. Tumbrills, under strong guards, have been moving to and fro with gold coin all the day. And in addition to this, three or four crores of specie were still known to be concealed beyond the amount already discovered—one crore of rupees being one millions of pounds sterling!

Inventors Convention.

The following advertisement appears in last Tuesday's Tribune :—

☞Various candidates having been named for the office of Commissioner of Patents, which is expected soon to be vacant; inventors will meet at the hall of the American Institute, 333 Broadway, at 7½ o'clock. on Wednesday evening, 25th inst. to take such order as may be deemed proper on the occasion.

CLINTON ROOSEVELT,
Sec'y of preliminary meeting.

[It is said that a shark can scent a corpse at a distance of 50 miles.

Smart Weed.

Smart weed made into tea, is said to be a good remedy for cholic. When cut and dried in full bloom, it is said to be an excellent preventative for botts in horses, and an excellent physic likewise. About one pound per week should be given

FULTON, (Hamilton Co.) OHIO, March 24.

GENTLEMEN.—I came here Dec. 1st, 1848, to work for Messrs. Kock & Davenport. On that day they started a Car Manufactory, and since that we have built about 80 freight cars and 25 passenger cars for different Railroads. We are building several cars for the Vicksburg Railroad. Our shop is 150 feet long, 50 feet wide, 4 stories high. The 1st story is the engine room; 2d story, machine shop; 3d, a passenger car shop, and 4th office, cabinet maker, trimmer and paint shops. The present building not being large enough the proprietors are building another 280 feet long, 50 feet wide, and 2 stories high. There is also a smith shop 80 by 40 feet, with 11 fires.—There are about 40 workmen employed in the establishment, and the busiuess is increasing. Yours, &c. R. S. L.

Snow in South Carolina.

MESSRS. MUNN & Co.—This morning being dark and gloomy, the wind coming due north, at 1 o'clock it commenced to snow, and continued until 5 in the afternoon At 4 o'clock I measured on a scaffold prepared by Col. Hampton for sunning cotton and the snow was 1 3-8 inches deep. The fields and verdant trees assumed a snowy whiteness. I never witnessed the like before.

Yours, &c. THOMAS SHANLY.
Columbia, S. C. April 15, 1848.

Warning to Smokers.

A singular case of asphyxia is related in one of the French journals. A youth of the name of Lemoine paid a visit to an uncle, who is a farm laborer in the neighborhood of Havre. The man occupied a small and ill-ventilated apartment. The nephew, at eight o'clock in the evening went to bed in the room. Soon after the uncle, and two companions entered the room, and all fell to smoking. The youth was asleep. At midnight the visiter withdrew, and the uncle went to bed. Laying his hand upon his nephew, he found him unnaturally cold, and endeavored to awake him but without effect. Help was called; some faint indications of life appeared, and a physician directed operations for the recovery of the patient. A post mortem examination was made, and the physician pronounced that he had died of congestion of the brain, caused by the respiration of tobacco smoke during sleep.

Anecdote for Factors and Consignors.

The West Tennessee Whig tells a yarn about a farmer in that part of the State, who, to make a speculation, put a large stone in one of his hogsheads of tobacco, and forwarded it to his commission merchant at New Orleans, directed the merchant to send him a barrel of sugar. By accident or otherwise, the stone was discovered. The merchant took the stone from the tobacco and put it into the barrel of sugar before he weighed it. put on the head and sent it back to the tobacco man in course of time, and did'nt say a word about the stone. But he found it before he had used up more than half of the sugar. He got four cents and bought it back at eight, without daring to exercise the poor privilege of grumbling at the one hundred per cent advance price on the re-purchase. Dishonesty is not always "the best policy."

Importation of Oil.

It is estimated by the Nantucket Enquirer, that, during the next two or three months the importations of oil into the different whaling ports of this country will reach to 50,000 barrels sperm, and 160,000 barrels of whale. After that period, however, the supply will be so small, that it will about balance the large quantity we have mentioned, and the total import of the year about sufficient to meet the demand.

Watch Gilding.

There is an establishment of Richard Rotherham & Sons, at Coventry, England, for making watches, where all the internal coating is done by the Electrotype They dip for a moment only on the wire those parts which they wish coated in a solution of the cyanide gold with a portion of pure nitric acid in it.—into this solution a piece of plate gold is kept continually suspended during the operation. This is to keep up the strength of the solution.

The Connecticut Copper Mines.

The New Haven Journal says: The Copper Mines of Bristol, in this State, are more extensive and valuable than people generally imagine, and at the present time are exciting considerable interest among capitalists and scientifie men. Within a short time, a large body of operatives have been added to the mines, and we are informod that now more than 300 hands are constantly engaged, and the yield of ore is increasing in quantity and value. These mines are considered by many, capable of judging, to be equal in point of profit to any other in the country, and the opinion has been expressed by Prof. Silliman who has made extensive researches in these regions, that the veins of ore extend in a southerly direction from Bristol to Hamden, a distance of some 30 or more miles, and if thoroughly worked, would be sufficient to give constant employment to thousands of miners. Large quantities of the ore are daily sent over the Canal Railroad, and in time, we have no doubt, the mines will prove a source of income and profit to the road, as well as to those who are engaged in its operation.

Great Explosion.

On the 10th inst. a great explosion took place at Windham, N. H., which from its peculiar nature should be a warning to all people against indulging a revengeful spirit. Two Irishmen had been discharged during the day from the employment of the company, and in the evening determined to revenge themselves by blowing up a large quantity of powder, which was stored in a building, to be used in blasting rocks. There were forty-six kegs in all, and the Irishmen in some way or other applied the match, supposing they could do so with perfect safety to themselves. The explosion was terrific, having been felt like the sound of an earthquake, in the neighbouring towns. One of the Irishmen, probably the one who applied the match, was blown sky high and to atoms. The other, farther from the scene of operations, escaped without much injury.

Barry's Tricopherous.

This excellent preparation has obtained a just celebrity for its peculiar qualities in strengthening and beautifying the hair, removing the dandruff and preventing premature baldness.

We have used this article for nearly two years with satisfaction, and take pleasure in recommending it to the attention of both Ladies and Gentlemen.

The numerous testimonials that have appeared in the different journals have been unsolicited by Prof. Barry, and may be regarded as evidence that his Tricopherous possesses all that has or can be said in its favor.

Literature Fund.

The Literature Fund of this State is mostly invested in State stocks, and amounts to $265,806 78, besides 10,880 acres of land; and the revenue estimated from it the present year, will amount to $42,051 15. This includes an appropriation of $25,000 from the income of the U. States Deposit Fund. From this sum the dividends to the academies will be, this year, $40,000.

Naval Regulation.

The Secretary of the Navy has issued an order directing that the Boatswains, Gunners, Carpenters and Sailmakers of the Navy, wear on each side of the coat collar a large navy button, on the back part of a blind buttonhole, three inches long, worked with black twist. The above named officers will also wear round their caps a band of navy gold lace, one inch and a quarter wide.

In the United States there are now 118 colleges, containing about 10,000 under graduates; and connected with them, either in professional departments or in preparatory departments, it is supposed there are at the present time 12 or 15,000 more.

According to a census published in the Geneva Gazette, this thriving village on the first of January, 1849, contained 5,586 inhabitants, being an increase of 341 in four years. The excess of the females or males between the age of 16 and 30, is 129.

© 1849 SCIENTIFIC AMERICAN, INC

For the Scientific American.

Theodolite and Circumferentor.

CAMBRIDGEPORT, MASS. April 18, 1849.

MESSRS. MUNN & Co.—I, sometime since, promised to furnish you with a description of my new Surveying Instrument, which I now undertake to do.

This instrument, a model of which you have seen, is a combination of the Theodolite, the Circumferentor, and Y. Level. That is, as a Theodolite, it will do, accurately the work of any instrument that has ever been made for Civil Engineering or Land Surveying purposes; while none of them will do its peculiar work. It is so constructed, that the vertical limb, with its telescope and the standard that supports them, may be removed instantly by means of a thumb screw; and by attaching the sight vanes accompanying this instrument to their appropriate place, the horizontal limb is at once converted into a Circumferentor which will perform work that none other can possibly do. These sight vanes answer several purposes. Again, the horizontal limb can be instantly removed from the levelling heads, or parallel plates; and the vertical limb, &c. being attached thereto, makes it a beautiful, light, strong and accurately working Y. Level with the capacity of taking angles of elevation or depression.

With this instrument, used either as a Theodolite or Circumferentor, I can (having the sun,) obtain the true North and South at pleasure, by three or more different methods, one of which will give, immediately, without calculation, the true meridian. A long magnetic needle is attached to this instrument, being contained in a narrow box, I however have no other use for this needle, than to show the magnetic meridian through a survey, and to show the variation of the needle, for any purpose I may wish, which I can do at pleasure.

In surveying a field, this instrument guides itself from station to station, independent of the needle, giving at the same time, a difference of latitude and departure more accurately than can be obtained by using the needle and tables for that purpose. Thus, at the end of a survey, I can at once determine the area, or detect any error committed in chaining the bounds. If an error has been committed in measuring any of the angles, the instrument will show it, without fail; hence all corrections can be made while on the field. But no one at all capacitated to survey need err with this instrument.

In laying out, or cutting off any given amount of land it is far superior to any other, always preventing the operator from commiting a mistake. It is a perfect instrument in triangular surveying, executing with facility, and truly, all the cases that can possibly occur in plain trigonometry or in laying out, or cutting off triangular pieces, of land, among which are the following :—

Given, the area and one of the acute angles of a right angled triangle; (of course the other angles are known,) these are all the terms required. The acute angle in this case is to be worked from, and in a few minutes, with but little calculation, I can give the true length and direction of all the sides, and the position of each of the other angles, without having removed the instrument from the first angle.—Given, the area (only) of an equalateral triangle, and almost instantly the work is ready for the chain, and stakes. Given, the area one angle of an isoselese triangle, and, as before, the work is done. Given, the area and the angles of a scalene triangle, and in a short time the length and direction of the sides, and position of the angles are determined. Given, the area, one angle, and one side of a scalene, and as before, the other parts are as quickly determined. Given, the area, and the ratio of all the sides of a triangle of any form, and in a very short time, the true length and directions of the sides, with the measurement of the angles will be ascertained.

In the above, and like cases, where the location of the angle and the direction or bounds of one side are known, they are to be made the foundation of the operation.

I have also invented and connected, to both the horizontal and vertical limbs of my Theodolite, a simple apparatus for fine reading. This is constructed on scientific principles. It divides to the sixth hundred and forty eight thousandth part of a degree, which is read by the unassisted eye. It can be made to read finer if desired. By means of this fine reading, in connection with a peculiarly formed staff I am enabled to measure distances in various ways, without chain or tape, on a level or at any angle of elevation or depression, hence, in railroad surveying, it is of superior utility; being, in itself, a perfect magazine of instruments; even supplying the place of the sextant, the latitude of a place being readily obtained by it in several ways.

In running the longitudinal section of a railroad it will give the straight line with the difference of level, or depth of cut and filling, with the distance from station to station, without requiring any calculation to be made.

Again, it will give you the cross section in all its particulars in like manner. For instance, it has been ascertained, that a certain stake on the longitudinal line, is fifty feet above the true level of the road. The hill declines, or slopes, with the transverse section of the road. On one side of the stake the hill is above it, on the outer it is below it. This Theodolite being placed under the stake and adjusted, the surveyor can (having his height from the level of the road, with its width and the angle of its side slopes,) direct his assistant, at what distance, up, or down the hills, and at what angle to drive a stake, which being followed in excavating, will meet that side of the level road nearest to said stake, and at the same time, he can obtain without calculation, the end area of said transverse section. All this applies alike to filling as well as to excavation.

I of course, in using this instrument, wholly disregard local attractions, and every cause of the variation of the needle, and believe myself to be fully prepared to prove, by occular demonstration, all, and more than I have advanced in this communication. I have taken measures to secure a patent.

WALTER M. WILSON.

[We have seen the above described instrument and endorse Mr. Wilson's description of its advantages and merits.—ED.

Useful Problems.

We hereby annex the answers to the four problems proposed in No. 30. We have two sets of answers, one set by the proposer and the other by Mr. Hinchcliffer of North Andover, Mass.

Solution of problem 1, by the proposer, 15 lbs. 1 7-9 oz., for 15 : 6 4-5 : : 225 : 6 4-5X500 / 15

This answer is wrong, by a hurried mistake no doubt of the author, for he well knows how to work it.

The answer by Mr. Hinchcliffer, is an algebraic equation with the result 202 on the long end of the lever, 15 feet, to balance 225 on the short end of 6 feet 9 2-5 inches. This answer is correct. The way to calculate lever power, is to suppose that equal weights at equal distances from the examen, balance each other, while if they are at unequal distances, the one double the length of the other one half the weight on the long end will balance the weight on the short end, not counting the weight of the lever.

Solution of problem 2, by the proposer.—9 feet 4½ inches, for 8 : 75 : : 12 : 75X12 / 12

The answer from both sources is the same.

Solution of problem 3, by the proposer.—Nearly 4 miles, for 3587 : 3600 : : 3956 : 3,970, and always the times of vibration of the same pendulum on different parts of the earth's surface, are proportioned to the distances of these points from the centre of the earth.

Solution of problem 4, by the proposer.—About 192,000 miles per second, for the light must occupy the 16½ minutes in passing thro' the diameter of the earth's orbit, hence we have 190,000,000 / 16.5X60

By Mr. Hinchcliffer.—It is well known that the earth is 190 millions of miles nearer Jupiter in that part of her orbit nearest him than in that part most remote; therefore since the eclipse is seen 16½ minutes sooner in the former part of his orbit, light travels 190 millions of miles in 16½ minutes.

The answer in both cases is the same.

It is not possible for an editor to sit down and critically examine and descant on mathematical propositions—they require more time than he can afford to spend on their examination, especially as they are of minor importance in the scope of his profession. All answers to propositions should therefore explain clearly the process of arriving at, as well as the results of investigations. For example, as collateral testimony to the last solved problem, we may say, it may be interesting to know how philosophers have been able to determine with certainty, that light really travels at the rate of 192,000 miles in a second of time. The method adopted was the following. The satellites of Jupiter were carefully observed for some time, and a rule was obtained which foretold the instants in all future time, when the satellites were to glide into the shadow of the planet and disappear, or again appear to view. It was found that these appearances took place 16½ minutes sooner when Jupiter was on the same side of the sun with the earth than when on the other side, that is, more distant from the earth by one diameter of the earth's orbit or path, and at all intermediate stations, the difference diminished from the 16½ minutes in exact proportion to the less distance from the earth.

We have some more Problems, which we shall propose next week, and give the answers the week after.

Cullodion for Wounds.

Finely powdered nitrate of potash 40 parts by weight; concentrated sulphuric acid 60; carded cotton 2. Mix the nitre with the sulphuric acid in a porcelain vessel, then add the cotton and agitate the mass for three minutes by the aid of two glass rods. Wash the cotton, without first pressing it, in a large quantity of water; and, when all acidity is removed (indicated by litmus paper,) press it firmly in a cloth. Pull it out into a loose mass, and dry it in a stove at a moderate heat.

The compound thus obtained is not pure fulminating cotton. It always retains a small quantity of sulphuric acid, is less inflammable than gun cotton, and it leaves a carbonaceous residue after explosion. It has, however, in a remarkable degree, the property of solubility in ether, especially when mixed with a little Alcohol; and it forms therewith a very adhesive solution, to which the name of Cullodion has been applied:

The Cullodion is prepared as follows,

Prepared cotton,	-	8 parts by weight.
Rectified sulphuric ether	125	" "
Rectified alcohol,	- 8	" "

Put the cotton with the ether into a well stopped bottle, and shake the mixture for some minutes. Then add the alcohol by degrees, and continue to shake until the whole liquid acquires a syrupy consistency. It may then be passed through a cloth, the residue strongly pressed, and the liquid kept in a well secured bottle.

Collodion thus prepared possesses remarkably adhesive properties. A piece of linen or cotton cloth covered with it, and made to adhere by evaporation in the palm of the hand will support after a few minutes, without giving way, a weight of from 20 to 30 lbs. Its adhesive power is so great that the cloth will commonly tear before it gives way. The Collodion cannot be regarded as a perfect solution of cotton. It contains, suspended and floating in it, a quantity of the vegetable fibre which has escaped the solvent properties of the ether. The liquid portion may be separated from these fibres by a filter, but it is doubtful whether this is an advantage. In the evaporation of the liquid, these undissolved fibres, by felting with each other, appear to give a greater degree of tenacity and resistance to the dried mass.

In the preparation of collodion, it is indispensable to avoid the presence of water, as this renders it less adhesive; hence the ether as well as the alcohol should be pure and rectified. The parts to which the collodion is applied should be first thoroughly dried, and no water allowed to come in contact with them, until the ether is evaporated.

This is the famous substance now used for dressing wounds.

Mr. J. H. Leith, a miller in Rochester, N. Y. ground in 24 hours by one run of stones, 200 barrels of flour.

To the Proprietors of the "House" and "Bain" Systems of Telegraphing.

OFFICE OF THE NEW YORK, ALBANY AND BUFFALO TELEGRAPH CO.
Utica, April 13, 1848.

Much having been said, through the medium of the press, about the accuracy and dispatch with which either of the above patent machines are worked I now make the following distinct propositions, which, if accepted, will enable me to judge which is the best and most reliable method of Telegraphing,—

FIRST. I will give to either of the above named parties the use of the wires of the New York, Albany and Buffalo Telegraph Company, in good order, any one or more days between the 1st and May next, they to place one of their machines in the office at New York, and one in the office at Buffalo, and an intermediate one at Utica.

SECOND. Mr. House and his associates shall use only what is patented to them in the United States, and they may have the first trial on the following conditions.

They shall transmit from New York to Buffalo, two hundred consecutive words, averaging five letters each, printing the same at the intermediate station, and using all the letters of the Alphabet, all of which shall be plainly printed in Roman characters or letters and correctly spelt; and two trials may be made and no more, and the result shall be submitted to competent judges, each party choosing one, and they the third, and their decision to be final; and if decided, to be fairly and correctly done, according to the terms, intent and meaning of this proposition, then I agree to pay the said House five hundred dollars; but if not correctly transmitted from New York to Buffalo, and at the intermediate station at Utica, according to the true intent and meaning of this proposition, then the said House, or his associates, shall pay me five hundred dollars for the use of the wire. The money to be deposited in the Oneida Bank, in Utica, on or before the 15th instant, by each party.

THIRD. I offer to Mr. Bain and his associates, the same terms, confining them to Bain's American Patent, without the use of any thing that Mr. Morse has patented.

The money to be deposited as above, subject to be drawn by the party entitled to it by the decision of the judges.

FOURTH. After full trial by the parties as above proposed, I offer to take the same wire used by them, it being in good order, with Morse's instruments, and will have transmitted the same number of words in less time; and for every word not correctly spelt and written out, with "Morse's" machines now in use at said offices, I agree to pay the above parties five hundred dollars, on condition that they agree to pay me one dollar for every word correctly transmitted.

All to be subject to the decision of same judges.

T. S. FAXTON,
President N. Y., A. & B. T. Co.

We would rather have seen the above proposition made without any bet upon the result. There is too much of the jockey about them. It is well known that both Mr. House's and Mr. Bain's Telegraph transmits messages very well. If their method of transmitting messages is an infringement on Mr. Morse's invention, why not bring the matter to Equity at once, and have a fair trial. This would be far more gentlemanly looking than tossing up dollars, for "heads up" and if we have laws, to protect inventions why not resort to them, first.

Weaving Ribbons.

Eight ribbons are generally wove at once in a loom something like our coach lace looms. In those countries like England where a great deal of ribbon weaving is carried on, the looms have eight shuttles, one to each ribbon, and they are so attached that they are worked as though they were but one shuttle. They weave very fast. In Switzerland there is considerable business done in the ribbon line, mostly by females, who spend part of their time in the fields and part in guiding the spindle and directing the shuttle.

A three story brick house fell in Cincinnati on the 3d inst. None of the inmates were injured.

© 1849 SCIENTIFIC AMERICAN, INC

New Inventions.

New Mode of Joining Collars and Hoops.

Mr. Samuel Pratt, of Boston, has invented a new plan of coupling collars, metals hoops and bands together. By his plan sheets of metal may be joined together to any length without rivets. Peculiar slits are made in each end of the collar ribbon, or the band of the hoop, or in the ends of the sheets of metal, which enables one sheet, or band, to dovetail into the other when a blow from the hammer joins them as effectually as by rivetting. This method of dovetailing hoops can be done faster and at less expense than by rivetting.

Screw Water Wheel.

Mr. James B. Gladney, of Reform, Alabama, has invented a new combination of the the screw and water wheel. He employs a water screw of an increasing pitch and belts its upper end with an angular bucket horizontal wheel. The water is admitted by the draft below upon that part of the screw of the least pitch and therefore it has continual action upon the threads of the increasing pitch. It is very evident that a screw of an increasing pitch must be superior to one of the uniform pitch, and whatever the results of this wheel may be, it has some novelty about it, so far as we are informed on the subject at present. Mr Gladney has applied for a patent.

Compensation Journal Box.

Mr. W. W. Robbins, of Milford, N. H., has invented a compensation journal box, which rests in the common concave bearings like a socket, but it laps over on the outside of the bearings and is held securely in its proper place, while at the same time, like a wheel within a wheel, it can accomodate itself to the gudgeon, if the shaft gets somewhat out of line and thus prevent torsion of the journal. He has made application for a patent.

A Good Invention.

In our list of Patents of last week there was one granted to Mr. William Snell of Easton Pa. for a machine to form ladies and gentlemen's gaiters, half gaiters and short boots without seams, at the same time producing any size required, in all their proportions so as to fit with the greatest nicety and exactness. The machine will form any of the materials in general use ; such as patent leather, calf, kip, men,s morocco, split leather or anything woolen. It dispenses with the knowledge of boot cutting and more than half the binding Such is the simplicity that any person unacquainted with the business can use it. We are informed it will reduce patent leather boots one-third their usual cost.

A useful Invention for the Ladies.

A Lady in this State is about to apply for a patent for an invention which is at once ingenious, useful, and exhibits inventive qualities of no common kind It is an article of domestic furniture, which answers for a cradle, a baby jumper, a table for the child to amuse itself with its playthings and it can be transformed in a moment from a cradle to a seat with castors on it, by which the child can by its own power, use it as a walking chair, and move it from place to place simply by pushing it.

Fireproof Wood.

A foreign journal says that Dr. Fuehs, a member of the Academy of Science at Munich, Bavaria, has discovered a composition made of granulated earth and an alkali. To obtain it, the inventor says, you must dissolve some moist gravelly earth, which has been previously well washed, and cleared from any heterogeneous matter, in a solution of caustic alkali. This mixture has the property of not becoming decomposed by fire or water.—When spread upon wood, it forms a vitreous coat, and is proof against the two elements.—The building committee of the royal theatre have twice publicly tried the composition on two small buildings ; the one which was not covered with the composition was consumed, while the other remained perfect and entire. The royal theatre at Munich has undergone this process having about 400,000 square feet, the expense of which was about 5000 francs.

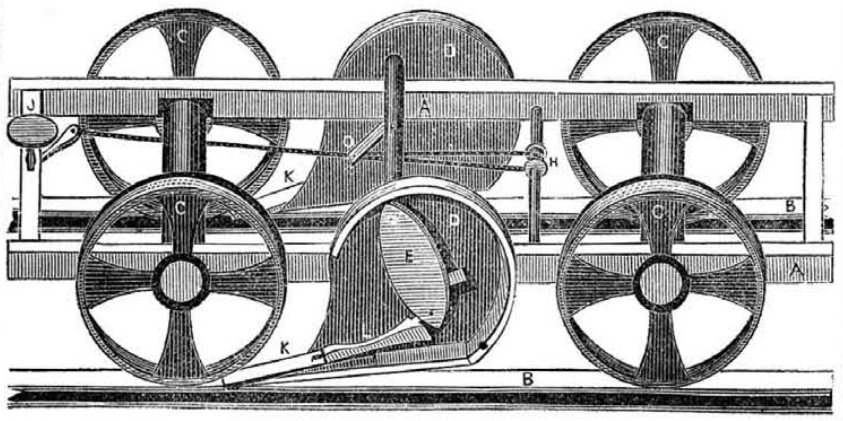
[Old things sometimes become new, and this is at least the case with the above new discovery. The composition spoken of, is that of glass, and the same as that of which artificial stone is made. Various kinds of fireproof paints were exhibited in this city at the last Fair af the American Institute.

New Method of Preserving Butter.

We have seen it stated in a number of our exchanges that "a Mr. Merryman of Springfield, Ill. has invented a process by which butter may be packed and kept for any necessary length of time, in any climate, and under any circumstances, in a state perfectly sweet, without salt or any other chemical agent."

There is no way in the world by which this can be done without "a chemical agent," except to pack the butter in an air tight vessel, extract the air by the force pump, and then seal up. This process, however, has long been known for preserving provisions for long journeys and sea voyages.

BURLING'S RAILROAD BRAKE.



This is an engraving of the Railroad Brake invented by Mr. Benjamin Burling, of Danville, N Y. and which we noticed last week. This engraving will at once convey a knowledge of its construction and operation. This is a semi-isometrical view which shows all the parts clearly. A, is the body of the truck. B B, are the two rails of the track. C C, are the wheels. D D, are the brake boxes placed on the side of the truck. This box is covered on the outside, but the cover is removed to show the interior parts. E, is the shoulder of the brake. It is firmly secured to the brake axle F, above, and is moved when the axle moves. G, is a small arm on the axle F, in the end of which the brake chain is fastened, passing from it over the pulley H, on the stationary shaft, and communicating with the common brake wheel J. The shoulder E, is attached to a flexible arm L, forming an elbow, and this arm is attached by a joint to the shoe wedge K. This shoe wedge is forced out of the box down an inclined plane—and is now represented as being forced under the wheels. By the combination herein represented its operation will at once be understood. By operating the brake wheel a great lever power is exercised upon the axle F, which communicates its power through the shoulder E, forcing down the shoe wedge K, under the wheels, and raising them off the track—thus arresting their motion by the power applied under them instead of the common method. Shoe brakes have been long known but they are altogether different from this.—They used to be employed on the old carrier wagons and were portable, merely clasped on the wheels, when going down a steep hill with a heavy load and after that were taken off. These old shoe brakes were no doubt adopted as being the best in principle for the specific object used. The principle of action in this brake is the same but the principles by which it is operated and the manner of its application are entirely different. We mentioned before that the inventor had made application for a patent.

Improved Ice Cream Freezer.

As the warm season is coming on, when the demand for ice cream will be of no common kind, at least if our summer heat be as extreme as our "winter's cold," a very simple and convenient plan of operating the Can is herewith presented, which for every purpose, is a most elegant substitute for operating the cream Can by hand, a work far more laborious than many are aware of.

Fig. 1.

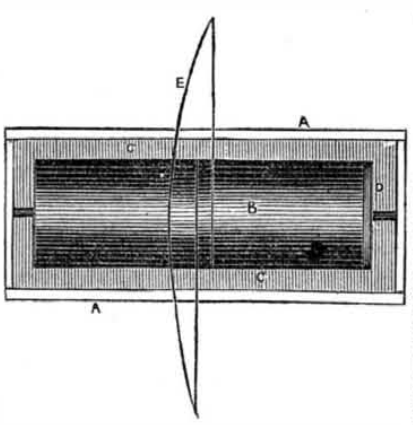
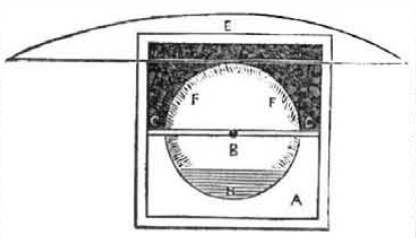


Figure 1 is a vertical section, and fig. 2, an end section. The same letters refer to like parts on both figures. A is the wooden box or chest. B, is the ice cream or freezing cylinder as it is called. C, is a shelf to keep the ice from the bottom. D, is the end or cap of the cylinder and fits on with screws. E, is a bow to operate the cylinder in the same way as operating the hand drill. F F, shows the cream freezing on the sides of the cylinder. H, is the cream in the cylinder. The ice and salt are put into the box and the cover is shut down, when the bow is driven by

Fig. 2.



hand the string playing through a hole on each side. A child can turn out more than an adult by hand, with this simple contrivance of Mr. J. G. Gleason, No. 82 Commercial st., Boston.

Medical Discovery.

It has been ascertained that the true source of scorbutic disease, as it shows itself in our ships and prisons, is the want of potash in the blood ; that salted meat contains little more than half the potash in fresh meats ; and that, while an ounce of rice contains only five grains of potash, an ounce of potatoe contains 1,875 grains, which accounts for the great increase of the disease since the scarcity of the potatoe. In patients under this disease the blood is found to be deficient in potash : and it has been ascertained by repeated experiments that whatever be the diet, such patients speedily recover if a few grains (from twelve to twenty) of some salt of potash be given daily. Limejuice is regularly ordered in the navy, as a specific for the disease, and the reason of its efficacy is not the acid, but the amount of potash, being 846 grains in an ounce. On these facts, it seems possible to found a slight, but very salutary improvement in the navy. Let a portion of tartrate of potash be ordered regularly to be mixed with the limejuice that is given out for use ; and let arrangements be adopted for boiling the salt meat in steam. A large portion of the salt would thus be eliminated and the food made more wholesome. A similar course might be adopted in work-houses and prisons. If so simple a remedy is in our hands, it is criminal to neglect it.

Preservation of Life from Shipwreck.

"Some two months ago," (says the London Standard,) "public attention was drawn to a series of experiments on the floating properties of shredded cork, when used for the stuffing of seamen's beds, bolsters, and every other kind of squab or cushion in ordinary use on board ship, and applied as a means of preserving life in cases of shipwreck or sudden casualty. It will be recollected that these experiments took place in the serpentine, in the Thames, both at Chiswick and Blackwall, and subsequently in her Majesty's dockyard at Woolwich last spring, in the presence of Admiral Sir G. Bremer, and other naval authorities. The success of the experiment was complete, demonstrating satisfactorily the adaptation of the material, for the first time exhibited in so useful a form, to the humane purpose of saving life under circumstances where human aid has hitherto been considered unavailing."

[We can beat that in New York. We have not only life preserving hammocks but full life preserver dresses for sale, in which a man might go to California dry shod carrying his knapsack well lined with beef and bread, through the Gulf and round the Cape, were it not for those grim visaged rascals, the Carribean sharks.

A Strange Carriage.

A New Carriage has recently appeared on the State Road, in Ohio, between Canal Dovers, and New Philadelphia, which is a novelty undoubtedly. The vehicle consists of a large hollow wooden wheel, fourteen feet in diameter and six feet wide. The horses are placed inside, and propel it along in the same manner that a caged squirrel makes its wheel to revolve. Slats are nailed on the inside floor of the wheel, by which the horses obtain foot-hold. In the centre is a small iron shaft, from which depend hangers which support four comfortable sofas for passengers ; the wheel thus revolves freely, the seats remaining in equilibrium.

There is a very simple arrangement for guiding this huge wheel, but we venture to predict, that it will soon be numbered with the things "that were."

New Mode of Washing.

A Mr. Tibbets advertises in the Mobile papers that he has made a discovery of a chemical nature, by which a large washing of clothes, say five hundred pieces—may be done by one person in twenty five minutes, without any machine, or any rubbing, and without any injury to the clothes. The Editor of the Register says, that the experiment was tested at the American Hotel in that city, in the presence of a number of persons, and with the most complete success ; and adds, that a knowledge of the ingredients employed in preparing the water, enables him to say that their use can work not the slightest injury to the clothing.

[All fal-de-ral, we believe. The grease in clothes can be removed only by some alkaline solution, and the dirt must be removed by washing. It no doubt can be removed quicker by first softening it, or separating its combination with the clothes, but after this it has to be rinsed and washed away with clean water.

A New Sea Signal.

Some persons on board of a Canal boat were carried out in the Lake during the recent great flood at Chicago and having nothing on board to use as a signal to the boat sent to tow them in, conceived the idea of holding up a window so as to reflect the rays of the sun in the right direction. The light was seen by the crew of the steamer, and the whereabouts of the canal boats was by this means alone ascertained, as her hull was not in sight.

This is a case which fully proves necessity to be the "mother of Invention."

© 1849 SCIENTIFIC AMERICAN, INC

NEW YORK, APRIL 28, 1849.

Patents, Inventions and Inventors.

No less than fifty-five patents are on our list this week. New York State has 16, Pennsylvania 10, Massachusetts 5, New Hampshire 4, New Jersey 3, Ohio 3, Vermont 2, Connecticut 2, natives of Britain 2, Kentucky 1, Virginia 1, Louisiana 1, Indiana 1, Michigan 1, Delaware 1, District of Columbia 1, Maryland 1. The 53 patents are thus divided among 15 States, of which New York has a share of 3 5-16, nearly one third of the whole, and Pennsylvania nearly one-fifth. The old Granite State for its number of inhabitants stands well upon its adamantine limbs. The fees for the 53 American patents amount to $1590. The fees for the two British patents amount to $1000. Four of the patents granted have already been illustrated and described in the Scientific American, viz. Mr. John Massey's Grain Drier, Mr. Tremper's Rotary Engine, Mr. Nathaniel Adams's Machine for Pressing Brick, and Mr. Bain's Electro Telegraph. It will be observed that the patent for Mr. Bain's Electro Chemical Telegraph which is issued this week, is the one that has created so much sensation throughout the country. We had expected to see Mr. Morse's issued at the same time, but this is probably delayed by request of the gifted inventor. A number of the patents have been described without being illustrated, in this paper.

A number of patents have recently been secured for Planing Machines. Mr. Allen's patent, granted this week, has been described, and Messrs. Barnum & Wells', granted a few weeks ago, illustrated in our columns.

We often hear people sneering at inventions and with a knowing look at their independence of mechanical improvements, ridiculing the honest efforts of inventors. Such men are infidels to progressive principles and scientific improvement, and we never fail to tell such characters our opinions respecting their principles. Such characters should have lived in the year 1 and died in the year 0–1.

In the spring of 1846 we happened to be travelling in the cars from Buffalo to Utica.—They were then erecting the telegraph wires on that line, and as we were wrapt in enthusiasm respecting that wonderful invention, and in conversation with a gentleman was pointing out some of its benefits, a person of a smiling and smirking consequential air, who had been reading one of the fashionable novels to his lady from the time he entered the cars at Rochester, interrupted us with, "oh yes, sir, it is all very fine for some interesting speculation, one of your perpetual motion hobbies to gull the public for a short time and disappear." We did not like the interruption, but like Midshipman Easy, we tried to reason the matter with him. But it was all in vain, *he had seen too much of the world* to be deceived with such things. We could not but exclaim—

"Oft has it been our lot to mark,
A proud, conceited talking spark,
Returned from his finished tour,
Grows ten times perter than before
Whatever word you chance to drop,
The travelled fool your mouth will stop,
Sir, if my judgment you'll allow,
I've seen it and *I* ought to know."

A sweeping article upon inventions has lately appeared in the Edinburgh Review and has been copied into that excellent periodical Littell's Living Age. The lash is laid on severely and injudiciously. The article points out the evils and defects of some inventions, and jeers at the lack of scientific knowledge displayed by inventors generally. It is true that many inventors are illiterate men, and a little science would have saved many of them much trouble and expense; but all men have not the good fortune to live above a state of dependence on severe daily toil, and consequently have not been able to acquire what is called "a good education." But learning can no more make an inventor, than it can a poet, and the only difference after all between an educated and an uneducated inventor, is this—the former may arrive at a conclusion faster as based upon comparative knowledge, while the system of the latter is tentative, and surely there is no man so ignorant, as not to know that experiment is the left hand of invention.

The Inventor of the Tubular Boiler.

It is well known that our locomotives would make but poor speed if their boilers had not a great amount of heating surface. The speed of a locomotive may be said to be limited by the amount of steam it can generate in a certain time. The greater the amount of surface in contact with the water, that is exposed to the heat of the fire, the greater amount of steam will be generated with the least waste of fuel and in the shortest space of time. The best plan to accomplish this, is to construct the boiler with a number of water tubes directly exposed to the heat of the fire and hot air. All locomotive boilers are made with a number of tubes about an inch and a half in diameter. The first successful locomotive was the Rocket, and its success has been attributed to the great amount of heating surface which it possessed over its opponents. This being true and the benefits of railroads incalculable, some mead of praise should be bestowed on the memory of the man, who if he did not invent the locomotive engine, invented what it could not do without, viz. the locomotive boiler. "Who was that man some will say? We never heard of him." We have heard the name of Stevenson as being associated with the locomotive, and we had supposed that he was the inventor of the engine, tubular boiler, and all. This is not so. The inventor of the Tubular Boiler, was an American, Col. John Stevens of Hoboken, N. J. He invented his tubular boiler, in 1804, and patented it in England in 1805. He propelled a boat on the Hudson in 1804, three years before Fulton, and after expending $30,000 he dropped the project without realizing a single shilling's worth of personal benefit. The whole world is now enjoying the benefits of his invention, and but few know the name of him to whom they are so much indebted.

Cork.

We are too apt to undervalue things that are used in common life, and which may be procured at no great expense. Water is as essential, yea more so, to our subsistence as food, yet we seldom think of its value because it is so plenty. Were we deprived of it by drouths like those experienced in some parts of the East, we would feel deeply the force of the beautiful song of David, "as the hart panteth for the water brooks."

Cork is a substance which is now very plenty and its real value as a useful article, is not duly estimated. Cork is a substance that is very light, can be easily compressed and it expands again when the compressing force is removed. It is therefore very useful to stop up very closely, that space into which it may have been driven, and it is therefore the best substance known for stopping the orifice of bottles and such like vessels. In olden times wax was the only substance used, in combination with clay or wood for this purpose.

Cork can be cut into various forms, and it has the property of preventing most liquids from pssing through it, although it is so light.

Cork is the outside bark of a tree of the oak species, and which grows wild in Southern Europe. When the tree is about twenty years old it is fit to be barked and this can be done successively every eight years afterwards—The bark grows on again, and improves in quality with age. After it is taken off the tree it is generally singed a little, over a strong fire of coals, after it is soaked a certain time in water, and then placed under stones to straighten it. The Cork tree was known and used both by the Greeks and Romans. In the days of Pliny the fishermen as now, made floats to their nets of Cork. It was also used for buoys on sand banks, in the days of Pliny. We think that Cork soles are something new, but the Roman ladies used it for this purpose in the days of Pliny too, and even our Cork Life Preserver, or swimming jacket, was known in the days of Camillus, for the Roman Soldier whom he sent to the Capital when besieged by the Gauls, "placed his clothes on his head when he came to the Tiber, and placing Cork under him crossed the river to the Capital."

Cork however was not in very common use in the "brave days of old," for cements and pitch were more commonly used with wood, to close up wine casks and vessels of oil.—Cork stoppers began to be generally used by German Apothecaries about the end of the 17th Century. For small stoppers to bottles a variety of different kinds of substances are now used, one substance is the wood of a tree which grows in South America, called Spondias Lutea. The roots of Liquorice is used in Sclavonia for that purpose, and the Cossacks of Russia, use the bark of the black poplar for stoppers to their flasks. In our county the corn ears are used for a good purpose for stoppers, but none of these things are equal to cork, and as Dr. Liebig has said, science is indebted to it for some of the advancements which it has made within the last century. India rubber is now used as a substitute for Cork for a number of purposes and it is superior to it, as it is but slightly affected by moisture or dryness, it is also more elastic and tenacious. The finer the grain the more suitable they are for preserving liquors, &c. The grand secret is to prevent the escape of carbonic acid gas which is the grand preservative. In England there are an enormous quantity of stoppers now manufactured out of India rubber. It is a thing of manufacture that has not yet crossed the Atlantic and become common with us.

Patent Stove Case.

At Auburn, N. Y. before Judge Conklin of the U. S. District Court in Equity, in the case of Elisha Foote vs. Silsbee and others on motion of the defendants, and on their giving in the penalty of $3,000 conditioned to pay him a judgement heretofore recovered by him for $1,500 and costs, against the defendants Silsbee, Race, Downs, Henion, and one Charles C. Thompson, provided said judgement should not be set aside and a new trial granted either in this Court or in the Supreme Court of the United States, the injunction heretofore issued by the plaintiff against the defendants, preventing them from making, selling or using regulators for stoves commonly called Race's Regulators, was suspended, and it was ordered that the motion for a new trial be heard at the next term of the Court to be held at Canandaigua on the 9th of June next.

For the motion, William H. Seward and Samuel Blatchford. Against it, Henry B. Stanton, and the plaintiff in person.

The Great Smoke Case Decided.

After ten days' tedious trial in Cecil County Court, Maryland, the great suit of Dr. John K. Sappington against the Messrs. Whitaker, popularly known as "The Smoke Case," was decided on Friday evening last in favor of the defendants. The Messrs. Whitaker are extensive manufactures of iron, and have furnaces in Havre de Grace. This smoke, Dr. Sappington alleged, came to his dwelling and entered therein, and in the phrase of the lawyers, greatly "damnified" him in his person, his family and servants, causing sickness so that he had to remove away from his house and his business to escape it.

Manufacturing Profits at the South.

The Augusta Manufacturing Company have declared a dividend of 3 per cent for the last three months, which is at the rate of 12 per cent per ann. The Augusta Chronicle says:—This result is the most remarkable when it is borne in mind that during this time only one hundred and sixty looms have been in operation. The full complement with the present capital would be two hundred looms. When the additional capital of forty thousand dollars, subscribed by the orignal stockholders, is paid in, the number of looms will be increased to three hundred and twenty-five. Some idea may thus be formed of the future business and profits of the Company.

Mechanics Fair.

The Salem, Mass. Charitable Mechanics Association is to have its first Annual Exhibition in the month of September next. Mr. Eleazar M. Dalton is Secretary, to whom communications may be addressed for more information.

Electricity and the Telegraph.

The following are some views upon this interesting subject, by S. C. Newman, Esq. of the Telegraph Office, Woonsocket, R. I. and which appeared in the Woonsocket Patriot of the 16th inst. as an answer to Mr. J. Helme, who solicited in the name of a number of others information on the two subjects, viz. "the materiality, or not of electricity, and its velocity." Mr. Newman says: "This then, is the most definite answer I am able to give you; from evidence drawn principally from analogy, and from the entire lack of any thing like contrary evidence, I am strongly inclined to the belief that Electricity is matter, and fully entitled to a place among the materiel organizations of the physical world; but at the same time must frankly own that when any tests are applied to it in relation to the question involving absolute demonstration, all we can honestly say of it is, *stat nominis umbra*."

[The most elaborate articles that have lately appeared on this subject, are some by Prof. Robert Hare, of Philadelphia. We believe that Faraday has the same opinion of the matter as Mr. Newman. Prof. Donovan of Dublin, differs from Faraday in a number of particulars.

The other question is: "Is its enormous velocity merely conjectural, or has it been subjected to any thing like demonstration; and if so, in what conceivable way can its velocity be computed?"

This can be more definitely answered Mr. Newman says. Its velocity is one hundred and eighty thousand miles in a second. The mode of demonstrating it we will give in a future number.

Emigration from the British Provinces.

During the week, ending April 16th, 425 passengers have arrived at Boston in thirty nine vessels, all but one of which were from the British North American provinces. 280 of these passengers paid head money, and 182 have been here before. These immigrants are of a good class of farmers and mechanics and almost as soon as they land, they start for the west. This large emigration is in consequence of the hard times in the Provinces—caused by the continued failure of the crops. It is said that the inhabitants in some places are very generally leaving for the States.

Rolling Mill at Utica.

Messrs. Higham & Co. of Utica, N. Y. have erected a Mill for rolling iron and are now in the full tide of successful operation. The mill has four furnaces, one steam engine of 160 horse power, and rollers for making round and bar iron, from three-eights of an inch to three inches in size. The mill has turned out from four to five tons of iron per day, which has been pronounced by competent judges to be of a very superior quality.

New Glass Works.

Messrs. Reed, Allen, Cox & Co. of Pittsburg, have purchased a site and are erecting buildings for the manufacture of Glass in the village of Lancaster, near Buffalo. They will commence manufacturing about the 1st of August. This will be an important branch of business for Lancaster.

Our Patent Patrons.

Quite a number of friends who have favored us with their business, will perceive their names in the Patent List this week.

Back Volumes of the Scientific American.

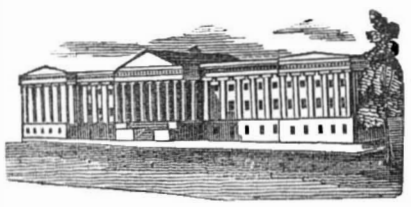
A few more copies of complete sets of vol. 3 of the Scientific American may be had at the office, either bound or in sheets. Price neatly bound $2 75, in sheets suitable for mailing $2. Send in your orders early if you desire them filled for we have but a few more copies left, and the number is growing less every day.

Our London Patrons.

We are happy in being able to inform our English patrons that such arrangements have been completed with the London Patent Office that the Scientific American may hereafter be found there. Messrs. Barlow & Payne are agents at 89 Chancery Lane, and will receive remittances on account of the Scientific American from those who may desire to subscribe.

Terms—3 dollars per year and postage paid out of the United States.

© 1849 SCIENTIFIC AMERICAN, INC



LIST OF PATENTS.

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending April 17, 1849.

To Thomas Kendall, of New York City, for Apparatus for drilling sub-marine Rocks Patented April 17, 1849.

To J. Buckman, of South Woodstock, Vt., for improvement in Bedsteads for Invalids.—Patented April 17, 1849.

To J. J. Low, of Philadelphia, Penn., for improvements in Spectacle Frames. Patented April 17, 1849.

To A. Faulkner, of Walpole, N. H. for improvement in Looms for Weaving. Patented April 17, 1849.

To G. Riley, of New York City, for improvement in Distilling Apparatus. Patented April 17, 1849.

To J. Touchstone and J. H. Clark, of Philadelphia, Penn., for improved method of expanding Metallic Pistons. Patented April 17, 1849.

To W. Hoyt, of Dupont, Ind., for improvement in cog-gearing Locomotives for ascending inclined planes. Patented April 17, 1849.

To J. Massey, of New York City, for improvement in Grain Drier. Patented April 17, 1849.

To W. Ferrell, of Mount Holly, N. J., for Vibrating Sash Stopper. Patented April 17, 1849.

To G. McKay, of Pittsfield, Mass., for Piston Valve Cut-off. Patented April 17, 1849.

To A. M. George, of Nashua, N. H. and E. Brown, of Lowell, Mass., assignors to N. Richards and others, for Revolving Die Spike Machine. Patented April 17, 1849.

To E. B. Cherevoy, of New York City, for improvements in Machinery for Cutting Veneers. Patented April 17, 1849.

To Theo. Schwartz, of New York City, for improvement in the manufacture of Paris Green. Patented April 17, 1849.

To A. Bain, of London, England, for improvement in Electric Telegraphs. Patented in England, Dec. 12, 1846—in America April 17, 1849.

To H. McEvoy, of Birmingham, England, assignor to W. Benjamin, jr. of New York City, for improvement in Hooks and Eyes. Patented in England May 27, 1847—in America April 17, 1849.

To A. Barclay and C. W. Bontgen, of Newark, N. J. for improved Skate. Patented April 17, 1849.

To J. Radebaugh and J. A. Matlack, of Lancaster, Penn., for improvement in Machinery for Cleaning Hair. Patented April 17, 1849.

To J. Essex, of Bennington, Vt. for improved Machine for making Carpenters' Squares. Patented April 17, 1849.

To S. Andrews and J. F. Halsey, of Perth Amboy, N. J. for improvement in Apparatus for making Soda Water. Patented April 17, 1849.

To R. G. Hatfield, and O. P. Hatfield, of New York City, for Railway Propeller. Patented April 17, 1849.

To E. Clark and J. M. Clark, of Lancaster, Penn. tor improvement in Machinery for separating Fleur from Bran, &c. Patented April 17, 1849.

To J. S. Honey, of Hartford, Ohio, for improvement in Cultivator Teeth. Patented April 17, 1849.

To J. M. Hollingworth, of Milton, Mass. for improvement in Machinery for taking and laying Paper from the cutting engine. Patented April 17, 1849.

To J. W. Hood, of Mount Sterling, Ky. for improvement in Trusses. Patented April 17, 1849.

To J. Sheldon and J. S. Barden, of New Haven, Conn., for improvement in Planing Machines. Patented April 17, 1849.

To T. W. Brown, of Howardsville, Va. for improvement in Tan Vats. Patented April 17, 1849.

To C. C. Lloyd of Philadelphia, Penn. for improvement in Blast Generators. Patented April 17, 1849.

To C. Horst, of New Orleans, La., for improvement in Piano Fortes. Patented April 17, 1849.

To H. B. Smith, of Manchester, N. H. for improvement in Morticing Machines. Patented April 17, 1849.

To A. M. Eastman, of Cincinnati, Ohio. for improvement in Driving Bobbins. Patented April 17, 1849.

To T. R. Wood of Cincinnati, Ohio, for improvement in Coffee Roasters. Patented April 17, 1849.

To A. D. Smith, of Meredith, N. Y. for improvement in the Water Ram. Patented April 17, 1849.

To R. B. Roll of Cincinnati, Ohio, for Curvilinear Blind Opener and Shutter. Patented April 17, 1849.

To R. Livingston, of Monroe, Michigan for improvement in Boxes for Railroad Cars. Patented April 17, 1849.

To B. T. Roney, of Newton, Penn., for improvement in Cooking Stoves. Patented April 17, 1849.

To J. J. Weeks of Buckram, N. Y. for improvement in Mortising Machines. Patented April 17, 1849.

To G. Gilbert, of New Haven Conn., for improvement in Machinery for Dressing Staves. Patented April 17, 1849.

To H. R. Hubbard and G. W. Hubbard, of Middletown, Conn. for improvement in Abdominal Supporters. Patented April 17, 1849.

To A. B. McFarlan of Downingtown, Penn. for improvement in Carriage Brakes. Patented April 17, 1849.

To S. L. Crocker of Canton, Mass. for Cut Nail from Muntz,s Metal. Patented April 17, 1849.

To J. W. Prescott, of Concord, N. H., assignor to A. and A. J. Prescott, for improvement in Musical Instruments. Patented April 17, 1849.

To J. V. Benschoten, of New York City, joint inventor with and assignee of J. G. Woodbridge and W. Mann, for improvement in Daguerreotype Apparatus for Panoramic Views. Patented April 17, 1849.

To C. Isbister of Alleghany City, Penn, for improvement in Grates for Coal Stoves. Patented April 17, 1849.

To J. Tremper, of Little Britain, N. Y. for improved Piston Ring and method of deriving motion therefrom in Rotary Engines. Patented April 17, 1849.

To Thomas Prosser, of New York City, for improved Tool for attaching Tubes to Boilers. Patented April 17, 1849.

To N. Adams, of Canterbury, N. Y. for improvement in Brick Presses. Patented April 17, 1849.

To A. Olmstead, of Easton, Penn., for improvement in Galvanic Batteries. Patented April 17, 1849

To E. T. Starr, of New York City, for improvement in the divisions between the tubes of Flexible Boats. Patented April 17, 1849.

To H. F. Briggs of Poughkeepsie, N. Y. for improvement in Shoulder Braces. Patented April 17, 1849.

To E. G. Allen, of Boston, Mass, for improvement in Planing Machines. Patented April 17, 1849.

To J. Johnson of Wilmington, Del. for improvement in Machinery for separating flour from bran. Patented April 17, 1849.

To R. F. Loper, of Philadelphia, Penn. for Arrangement of flues in Marine Boilers. Patented April 17, 1849.

To D. Hotchkiss and B. R. Norton, of Syracuse, N. Y. for improvement in Spectacle Glasses. Patented April 17, 1849.

To. H. Knowles, of Washington, D. C., assignor to John Levi, for improvement in Cutters for tongueing and grooving. Patented April 17, 1849.

To J. L. Gatchel, of Elkton, Md. for improvement in Water Rams. Patented April 17, 1849. Ante-dated April 10, 1849.

DESIGN.

To J. & A. Morrison, assignees of A. Haney Troy, N. Y. for Design for Stoves. Patented April 17, 1849.

[This is the greatest list of Patents ever issued at once.

Blanchard's Patent.

In the Circuit Court of the United States, in and for the Eastern District of Pennsylvania, in the third Circuit of October session, 1848.—No. 4.

Thomas Blanchard vs. Isaac B. Eldridge.—In Equity. Sur motion for attachment.

To the Honorable, the Judges of the Circuit Court of the United States :

In compliance with the annexed order directed to William W. Hubbell, the subscriber —copies of the affidavits, and the model or specimen therein referred to were obtained, and the respondent notified to exhibit his machine in according to the order (a copy thereof at the time being furnished to him,) on Saturday the 24th of February, A. D. 1849, between the hours of 4 and 5 o'clock, P. M.

On the morning of the Saturday aforesaid, the respondent called upon the subscriber at his office and informed him of the precise locality where the machine of the respondent, in obedience to the order, was to be exhibited. At the hour appointed, the subscriber repaired to this place and found the respondent in waiting. The building is a brick house on the east side of Front street above Callowhill street, not numbered though situated next above No. 277; it is supplied with steam power, and is appropriated to machinery of various kinds for working in wood, comprising Saw Mills, Beading Machines, Planing or Smoothing machines, &c., and in one of the third story rooms was the machine of the respondent standing in running order. About the room in various places were parts of a machine that had been taken down; strap holes through which to communicate power were in the floor, and an abundance of room to run such a machine The respondent alleged that it was Mr. Brown's machine, and the same that during the last trial was exhibited in court. The subscriber from an inspection of the machine is of opinion that it is the same and that it did not present any evidence of being recently used. The respondent had assisting him, an apprentice alleged to be named Thomas Roberts.

The machine standing in apparently running order, and claimed by the respondent as his invention, and to be exhibited in compliance with the order of the Court, was now minutely examined, and observed to be a temporary and experimental structure in many of its parts, apparently having been altered from a turning machine of different structure. Of this machine, as it there stood and operated, the subscriber reports the following description :—

The frame work or body of the machine is made of wood, supporting the working parts which are chiefly composed of iron. It has two sets of iron mandrils parallel to each other, on one of them is suspended the model or pattern, on the other the rough block to be shaped. These mandrils with their respective material revolve simultaneously and continuously during the operation of cutting, the one communicating to the other by means of intermediate cog wheels.

The model has bearing against it a friction point consisting of a rounded iron column in an upright or perpendicular position, and is apparently cast on to the rim of what appears to have formerly been a friction wheel —that still remains on its shaft attached to a moveable frame resting on a horizontal base. The friction point or column does not revolve, nor transversely to the model present a curved face; transversely it presents a straight perpendicular face; and longitudinally with the model it presents its rounded or curved face, to correspond with the traverse of the cutting edges used; the only motion given to the friction point or column is transverse to the model, and is imparted by the inequalities of the surface of the model, by its revolution and the longitudinal feeding of the friction point. This transverse motion of the friction point is communicated to a cutting instrument by means of interposing graduating levers similar to those in the iron machine exhibited in court by the respondent et. al. at the last trial, which move another carriage carrying the said instrument, and acting as a base to the first or model's carriage, moves parallel with it and horizontally on rollers; this transverse motion of the cutting instrument, owing to the graduating levers is equivalent to or proportionate with the transverse motion of the friction point or column, to give a fac-simile or proportionate product.

(*To be continued.*)

Rural Decorations.

We have seen thousands expended on a few acres of ground, says Downing, and the result was, after all, only a showy villa, a greenhouse and a flower garden,—not half so captivating to the man of fine taste as a cottage embosomed in shrubbery, a little park filled with a few fine trees, a lawn kept short by a flock of favorite sheep, and a knot of flowers woven gaily together in the green turf of the terrace under the parlor windows.

You have five hundred acres of natural park, that is to say, fine old woods tastefully opened, and threaded with walks and drives, for less cost in preparation and annual outlay, than it will require to maintain five acres of artificial pleasure ground.

A pretty little natural glen, filled with old trees, and made alive by a clear perennial stream, is often a cheaper and more unwearying source of enjoyment than the gayest flower garden.

Ornamental Treee.

Nature in her dispensations seems to scorn the influence of wealth. She offers light, water and air, all indispensables to our comfort and happiness, and even our existence, free alike to the high and the low, to the rich and poor. In obedience to the same liberal system, she places within the reach of the humblest among us the means of gratifying a taste for the most beautiful and elegant of her ornaments. The tree that casts its grateful shade in the door-yard of the humble cotter, waves as gracefully in the free air of Heaven, blooms as greenly and as proudly spreads its branches as that which throws its shadows against the stately mansions of ease and opulence. Nature sometimes, indeed, seems to rebuke the embellishments of Art, or to recompense the poor for the paucity of their enjoyments, by rearing in the presence of the lowliest tenements the most beautiful of these elegant evidences of her handiwork.

All this we can say of the country because God made that, but as man made the city, we cannot say the same thing about it. How much better would it be for all if in our cities every house by law was bound to have a space around it for flowers, &c. But because our country is so small we are obliged to build and live in houses where neither the sun smiles, nor the winds waft their sweets to cheer the heart and light up the cheek with the bloom of health.

Substitute for the Potatoe.

There is a root called the Mayua, which grows in the Peruvian mountains and is much cultivated by the natives, which would be a good substitute for the potatoe. It grows with sometimes as many as fifteen tubers to a root; these are the average size of our potatoes, and are round, kidney-formed, or peg-pot shaped, according to kind. The color is bright yellow, with rays of reddish purple or scarlet diverging from the eyes, which are deeply set.

When cut, a delicious odor exhales, mingled with a certain subacidity by no means repulsive; on the contrary, attractive to the palate.

Eaten raw, the root produces a rich, smooth unctuous savor, which lasts but a short time and is all at once succeeded by a piquant, peppery taste, exciting the tongue somewhat as ginger. This spicy taste afterwards disappears and leaves in the mouth a pleasing perfume and agreeable coolness.

Gardening.

None but those who have enjoyed a garden can appreciate the satisfaction of sitting down to a table spread with the fruits of one's own planting and culture. A bunch of radishes—a few heads of lettuce—taken from the garden of a Summer's morning for breakfast: or a mess of green peas or sweet corn, is quite a different affair from the market in a dying condition, to be put away in the cellar for use. And a plate of strawberries or raspberries lose none of their peculiar flavor by passing directly from the border to the cream without being jolted about in baskets until they have lost all form and comeliness.

© 1849 SCIENTIFIC AMERICAN, INC

TO CORRESPONDENTS.

" G. W. P. of Williamsburg."—It appears to us that the friction will be very much increased by your arrangement, a very important objection, and one that all mechanics should labor to avoid. The smaller the pulley the less will be the friction, a principle well known to all scientific mechanics.

" J. S. of Ky."—Yours of the 13th came safe. We have forwarded the back volumes as per order. The $3 forwarded for the Goldometer, has never been appropriated, and the indications are that " Jose" has absquatulated from the " diggins." Thank you for the interest manifested in the circulation of the Scientific American. We shall probably make note of your suggestions, which are very good.

" D. A. W. of Rochester."—Messrs. Pease & Murphy and Mr. Bently are excellent Boiler makers in this city. Do not know the names of any parties in Albany or Troy. S. C. Hill & Co. are agents for Bently's Boilers.

" J. C. H. of N. Y."—We have an order from Tenn. for one of your machines, and we wish you to box it carefully and forward it to us as soon as possible. You had better consign four of them to Messrs Norcross & Co.—They are gentlemen of responsibility and experience, and no doubt can dispose of them very readily. We shall forward your letters patent next week by express. They reached us on the 24th inst.

" A. S. of N. J."—We are getting impatient for the desk we contracted for. We must request you to hasten the matter without delay, as we are really in distress. We shall send you a dose of Brandreth Pills to effect a movement if we don't hear from you soon.

" J. A. T. of Ala."—The Camera Lucida is very easily understood, and is designed to instruct those unacquainted with the art of drawing.

" A. R. of Miss."—We know of no work to instruct you in the cutting of tin patterns The only foundation is in Geometry, that will enable you to be a good pattern cutter. We will publish the information you want in a future number with all that is new on the subject.

" W. G. of Va."—Your communication will be answered in a few days, and if possible all the particulars will be furnished.

" S. P. S. of Ky."—The drilling machine to which you refer is well adapted to stone work. We have operated with it on cast iron and it performs well.

" A. G. and H. D. of Mass."—Your papers funds, &c. came safe, and have been forwarded to the Patent Office.

" R. R. of Geo."—Your machine was shipped by the Southerner, and bills of lading forwarded.

" C. B. H. of N. Y."—We can give you Mr. Geroud's claim. We believe that it is entirely different from your invention.

" W. L. L. of Pa."—The wedge appears to us to be the most destructive on the rail, but more effective as a brake.

" H. L. H. of Va."—Your pendulum is entirely different from any that we have ever seen, and its merits are self-evident. It is a beautiful invention.

" E. J. C. of R. I."—Your plan has been tried before and was a failure. See an article on the subject in the Edinburgh Review of December 1848. Do not be at the expense of a single cent.

" T. B. of N. Y."—Yours has come to hand and we will give it attention.

" A. H. R. of Pa."—If after a trial, your engine was found superior, we would be willing to describe it and illustrate it also, but the hopes which have so often been excited for such engines have proved as yet to be fallacious.

" W. W. R. of N. H." " J. C. M. of Mich." " H. & L. D. B. of Pa." " S. P., G. & D., and J. J. & C. of Mass." " H. & W. of Ct." " I F. B. of Geo." and J. B. G. of Ala."—Your specifications and drawings have been forwarded to the Patent Office with fees, since our last issue.

" C. M. M. of Pa."—We forwarded your specification for signatures last Friday week—Please return it as early as possible.

" J. E. W. of St. Louis."—Your letter and contents of the 6th, was duly received. The names you sent were entered according to your desire. When you model comes to hand we will address you by letter. The advertisement you perceive we have inserted.

" E. R. B. of Wis."—An engraving of your invention will appear in our next number.—Subscriber entered per request We shall have to be furnished with a model before we make your specification and drawings. However your invention is secure for the present, without making further expense.

" J. H. of Ohio."—Your model and funds came safe. The papers will be forwarded for your signature in a few days, together with an assignment, which will be necessary.

" High and Low Pressure Steam," will be answered next week in an article on the subject.

" A. B. of Wheeling, Va."—You will excuse us, we know, for not writing sooner.

Rotary Engine.

Our history of the Rotary Engine is suspended till the Essay on the Patent Laws is finished.

To Our Subscribers.

We would respectfully remind those who are now receiving their papers in single wrappers that if they will exert themselvess a little and obtain two, three or more, (the more the better) names with their own, it will render their paper less liable to loss and damage, through the mails. We are obliged to fold the papers for single wrappers in the smallest possible compass, and the post office clerks are more liable to overlook them in their hurry than they would if the wrapper contained three or more papers. Our subscribers, however, have always manifested a deep interest in the circulation of the Scientific American believing it to be the best publication of the kind in the country, and if it merits this high compliment, to its subscribers belong the honor of making it so. If you ask why; we answer by saying that no person reads it, until he has paid in advance for it, a compliment which we are proud of paying our readers We believe that our old patrons will continue, and we depend upon their generous aid to extend the circulation.

Advertisements.

SOUTH WESTERN PATENT AGENCY.

THE Subscriber has opened an Agency for the sale of patent rights, machinery, &c. of every description. My object is to enable inventors and manufacturers to realize the fullest advantage from their rights by introducing them into the vast West. All kinds of really good machinery and inventions are wanted, such as stave dressing, barrel making, morticing, sash, iron and wood turning, drilling, pressing and railroad machinery, as well as water wheels, windlasses, steam engines, cotton and woolen machinery, &c. To sell machines, &c. a model or machine will be needed; for patent rights a power of attorney would be requisite. My charges will be moderate, and energy used to forward sales. No charge will be made until some benefit is realized. Letters (Post Paid) will receive immediate attention.

References :—Geo. Higgins and Geo J. Mankin, New York; L. Pickering and S. Lafflin, St. Louis; Hon. Jas. H, Woodworth, Mayor of Chicago.

JOSEPH E. WARE,
a28 tf 65 Second st., St. Louis, Mo.

TO MECHANICS & MANUFACTURERS.

THE Subscribers having made arrangements with some of the principal Machinists and Foundries in the country, are prepared to execute any orders for machinery, tools or mechanical implements of any kind on short notice, and very low prices.

The attention of mechanics is particularly called to the fact, that we will furnish all articles pertaining to mechanics at law rates, and with despatch.—We have constantly on hand a variety of second hand machinery which will be sold very low.—Those ordering from us may depend upon being satisfied both as to quality and price. Where an order is made any information on mechanical subjects will be given without charge.

We will also receive proposals from Patentees for the sale of their articles, and patent rights in different sections of the country.

a28 tf NORCROSS & CO. 60 Nassau st.

RIVED STAVES, &c.

THE Subscriber has invented (to be patented) a new Stave machine, with which one boy will dress 8 to 10 hogshead staves per minute and do it well. It is very simple and compact measuring four and a half feet by one and a half. With a slower feed one horse will work it with ease. Prices VERY LOW. He also sells at higher prices his **Stave Dressing and Jointing** Machine—a truly EXCELLENT article. Also, a new Planing and Matching Machine, which cannot be surpassed by any other in use. Address

a28 2m* H. LAW, 216 Pearl st. N. Y.

E. NEVILLE, WOOD ENGRAVER.

122 Fulton st. corner Nassau.

☞The above is prepared to execute all orders at the shortest notice and on the most reasonable terms.

REMOVAL.

HARTSON'S First Premium Tool Manufactory will be removed on the 1st of May from No. 42 Gold street, to Nos. 58 and 60 Vesey street, where he will enlarge his business and be able to meet the great and increasing demand for his superior Turning Lathes, Planing, Drilling Machines, &c.

a21 2t G. B. HARTSON.

NOTICE.

WHEREAS certain persons have undertaken to manufacture my Patent American Elastic Safety Pins without any authority from me for so doing, thereby endeavoring to deprive me of the means of obtaining an honest living; this is to caution dealers not to purchase the Pins of any agents they may employ, as they will be liable to severe penalties for vending the same. A prosecution has been commenced by me against the said parties to recover damages for the infringement of my patent right.—The said parties are also using Cards with my father's name, James Rabbeth, on them, in conjunction with their own, pretending that they are in partnership. This is a fraud on the public. There is no such firm, as my father dissolved partnership with said parties in 1848, and forbid the parties to make use of his name after that date. Dealers are informed that all pins made by me will have the words "Manufactured by Thomas Rabbeth," on the bottom of each card, and all others are infringements on my patent. THOMAS RABBETH, Patentee,
Glastenbury, Conn.

☞Price of my Pins $3,75 per gross. a21 2t*

TO RAILROAD COMPANIES.

THE Subscriber has made application for letters patent on his self-acting Railroad Gate, designed to close up the common road in dangerous places, that nothing may intrude upon the Railroad at the time the engine or train are passing, and is now ready to negotiate with Companies, on most reasonable terms, for the erection of such Gates. For further particulars, apply to A. C. Coffin, Haverhill. Mass.

a21 3t* RICHARD COFFIN.

STEAM ENGINES.

WE have on hand a few first rate 5 horse power engines of superior construction complete with pumps, regulator and connecting pipes that we will sell for the low sum of $250.

Also, we have an excellent 2 1-2 horse power engine complete with boiler, connecting pipes, pump, &c. which we will sell and pay expense of boxing and carting to any pier in New York for the small sum of $275. It is a beautiful piece of machinery and worth $400. The boiler is a horizontal one and of proved strength. Terms cash.

The engines are made of the best material and the piston works vertically so that they occupy but little space. Address MUNN & CO. New York, Post paid. a14

Great Improvements in Planing, Tongueing and Grooving Lumber.

JOSEPH P. WOODBURY'S PATENT PLANING MACHINE.

THE Subscriber having received Letters Patent for a Stationary Cutter Planing, Tongueing and Grooving Machine, now offers for sale the right to use the same.

This machine will plane six thousand feet of Boards to an uniform thickness in one hour, producing a better finished surface than it is possible to plane by any other means now known, not excepting the hand plane, and is peculiarly adapted to plane and joint clapboards or weather boarding, and will do the work faster and better than any machine heretofore invented.

This machine is so arranged that it planes the board with an unbroken shaving the whole width and length of the material, and does not take more than two thirds the power that is required to do an equal amount of work by the rotary cutting cylinder now in common use. The construction and organization of this machine is different from any now in use.

Communications for further particulars cheerfully responded to by addressing the subscriber (post paid,) Boston, Mass. One of the above planing machines may be seen in operation by calling on the patentee.

JOSEPH P. WOODBURY,
a21 tf Border street, East Boston, Mass.

HAND PLANING MACHINES.

THE subscribers have on hand and are constantly manufacturing Hand Planing Machines of the most approved construction: will plane 22 inches in length and 10 inches in width a sample of which may be seen at Wood's Tool Store, corner of Chatham and Duane sts. N Y.

The subscribers also make to order larger sized Planers, to work by power. Also, Lathes, Drilling Machines, Mill Gearing, Shafting, Pulleys, &c. Orders left at T. J. Wood's Tool Store, or addressed to the subscribers at Union Works, Meriden, Ct. will receive prompt attention.

OLIVER SNOW & CO.

N. B. All work done by us is warranted to give satisfaction. m31 6t*

GENERAL PATENT AGENCY.

REMOVED.

THE SUBSCRIBER has removed his Patent Agency from 189 Water to 43 Fulton street.

The object of this Agency is to enable Inventors to realize something for their inventions, either by the sale of Patent Goods or Patent Rights.

Charges moderate and no charge will be made until the inventor realizes something from his invention.

Letters Patent will be secured upon moderate terms. Applications can be made to the undersigned, personally or by letter post paid.

f8 SAMUEL C. HILLS, Patent Agent.

A. G. FAY.

MANUFACTURER of Lead Pencils. Graduated Drawing; writing and Stylographic; and Artist's pencils, Crayons, Ever points, Pen Holders &c.

The above pencils are peculiarly adapted to Mechanics use, as they possess great firmness and strength of points.

Orders solicited from all parts of the country and goods forwarded with despatch.

Concord, Mass. j20 tf

MINIFIE'S MECHANICAL DRAWING BOOK.

THIS is one of the most valuable works ever published, for Mechanics, desiring to learn the art of Drawing. The rules are all familiarly explained, and it is well illustrated with drawings, sections and elevations of buildings and machinery, an introduction to Isometrical Drawing, and an Essay on Linear Perspective and Shadows, 46 steel plates, containing over 200 diagrams. The work is bound in a beautiful and substantial manner. Price $3.

For sale by MUNN & CO. Agents for this city.

a21 tf

Lap welded Wrought Iron Tubes FOR TUBULAR BOILERS,

From 1 1-2 to 8 inches diameter.

THESE are the only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,
d30 28 Platt street, New York.

MAGNIFICENT PREMIUMS.

☞On payment of the yearly subscription to the publishers of the

NEW YORK WEEKLY SUN,

of ONE DOLLAR, subscribers will receive gratuitously, a splendid large portrait of PRESIDENT TAYLOR, and also have the chance of securing one of the

1000 PRIZES,

worth from $25 to $1 each, which are to be distributed among the subscribers to that paper, at the close of the present year.

The Weekly Sun for 1849, besides being the best and cheapest Family Paper in the world, will be enriched by a series of ORIGINAL PRIZE STORIES written expressly for this paper, and for which Four Prizes of $250 have been offered by the Proprietors.

BEACH, BROTHERS, Sun Office.
m31 tf corner of Nassau and Fulton sts.

SUPERIOR TURNING LATHES.

JAMES STEWART, 15 Canal-st. and 106 Elm-st. is constantly manufacturing and has now on hand between 50 and 60 superior lathes of the following descriptions and at reasonable prices. namely:

Dentist's Lathes, very highly finished.
" " common,
Brass and Wood Turner's Lathes.
Jeweller's and Pencil-case maker's very superior.

J. STEWART is also authorized to act as agent for the sale of the celebrated Lathes manufactured by James T. Perkins of Hudson, of large size and at prices from $250 to $800. A specimen of this description may be seen at his factory as above.

j27 tf

BRITISH PATENTS.

MESSRS. ROBERTSON AND CO.,

PATENT SOLICITORS.

(Of which Firm Mr. J. C. Robertson, the Editor o the Mechanics Magazine from its commencement in 1833, is principal partner,) undertake

The Procuration of Patents.

For England, Scotland, Ireland, and all other European Countries, and the transaction, generally all business relating to patents.

Instructions to Inventors can be had gratis, on applying to Mr. THOMAS PROSSER, 28 Platt Street New York; as also the necessary forms of Petition and Declaration for British Patents.

PATENT OFFICE
m10 tf 166 Fleet Street, London.

PATENT LUBRICATING OIL FOR MACHINERY.

THE subscribers are now prepared to supply Devlan's Patent Oil in any quantity. Machinists, Manufacturers &c., are invited to examine the article. Certificates of its superiority over all other oils from some of our most extensive manufacturers can be seen at this office.

KENNEDY & GELSTON, 5 1-2 Pine-st. New York, Sole Agents for the New England States, and State of New York.

Samples of the oil may be seen at the Scientific American Office. m10 tf

SUPERIOR ENGINE LATHES.

WE are manufacturing and selling at our establishment in New London, Ct. a superior article of Screw Engine lathes and also hand lathes of every dimension at an extremely low price.

Address ALBERTSON, DOUGLASS & CO.
Post Paid [d2 6m*] New London, Ct.

Z. C. Robbins,

Consulting Engineer and Counsellor for Patentees.

Office on F street, opposite Patent Office, Washington, D.C. j20 tf

WONDERFUL CHURNS.

THAT will cause butter to come from milk in three to four minutes, for sale at $3, $4 and $5 each, at the Agricultural Warehouse of

f8 S. C. HILLS & CO. 43 Fulton st.

CAMERA LUCIDA.

NOTWITHSTANDING the demand for these useful instruments has been so great we are yet able to supply orders for them.

Every draughtsman and every person that desires to foster a taste for the beautiful art of sketching should surely have one. Address MUNN & CO. at this office. Price $6, boxed and shipped where directed. m31

SAW MANUFACTORY.

LEAVITT & M'DANIEL, Fisherville, N H., Manufacturers of Mill, Circular, Tennon, Cross-cut, and Pit Saws. Also, Felloe, Turning and Veneering Saws; Billet or Wood Cutter's Saws; Iron or Brass Web Saws, Pruning and Butcher's Bow Saws, Chest, Hand, Pannel and Ripping Saws. Also, Plastering Trowels. J. McDaniel, Concord, Wm. D Leavitt, Fisherville. RUFUS R. LEE,
Manufacturers' Agent, No. 11 Kilby st. (up stairs)
d30 3m* Boston, Mass.

" ATTENTION THE WHOLE "

CITIZENS and Strangers are respectfully invited to visit GURNEY'S DAGUERRIAN GALLERY, 189 Broadway, where Likenesses of the finest finish and most durable materials are taken in clear or stormy weather.

N.B.—Paintings, Daguerreotypes, Engravings, &c copied. m31,

FELTING MANUFACTORY.

JOHN H. BACON.

(Late of the firm of R Bacon & Sons.)

☞Manufacturer of Feltings for Water Filters, &c., Steam and Water Pipes, Emery Wheels, Calico Printers', Jewellers', Marble Workers' Boot Felts, Felting for Railroads, &c. &c. Also Lambs Wool Wadding for Cloaks, Skirts, Hoods, &c.

For sale and orders received by T. C BACON & CO., corner of Union and Ann sts., also by E. C. TURELL, No. 26 Ann st. Boston, next door to Oak Hall. a7 3m*

Johnson's Improved Shingle Machine.

THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use. Manufactured at Augusta, Me. and Albany, N. Y. J. G. JOHNSON

Augusta, Maine, Oct. 28, 1848. o28 1y

© 1849 SCIENTIFIC AMERICAN, INC

PRIZE ESSAY.

Essay on the Patent Laws.

WITH SUGGESTIONS OF ALTERATIONS AND ADDITIONS FOR THEIR IMPROVEMENT.

By Edmund Maher, Civil and Mechanical Engineer, Washington, D. C.

No branch of Jurisprudence, has stronger claims upon the attention of the Legislative Department of any country; none is better founded in justice, and sound public policy, and none more intimately connected with the advancing prosperity and welfare of society than that branch known as Patent Laws. It is designed to be, and in its practical operation has been, a power universally diffused, and putting in operation a vast amount of intellectual machinery, for the discovery and production of new and useful things to enrich and beautify the land—and it seems to be equally true, and much to be regretted, that a policy so important is not generally understood, and is not, therefore, duly appreciated. Men find no difficulty in perceiving the propriety and necessity of laws for the protection of tangible property—with this they are generally familiar, and their importance is a part of the practical experience of all. But from a want of equal familiarity with the nature of property in inventions, and its true relation to, and bearing upon, public and private prosperity, they find more difficulty in comprehending, and less inclination to acknowledge the true magnitude of the policy involved, in the laws for the security of property, consisting of combinations of thoughts.

That laws protecting and encouraging inventions are founded in pure justice, and calculated to arouse the productive energies of genius, more for the benefit of society generally, than for the benefit of the inventor, is obvious to any one who will notice the true relation which the inventor holds to the government, and the extent to which society has already availed itself of the prodcuts of his skill.

Patent Laws are the legitimate offspring of civilization and intelligence. They belong to an age of light and knowledge. Ignorance can neither comprehend the extent of their utility. appreciate their importance, nor be expected to sanction their existence.

They are designed to prescribe, and establish, the relation of the inventor to the public, in fixing and determining their respective legal rights to the invention. They establish a relation in the nature of a mutual understanding, between the inventor and his government—the one being in consideration of the other.

To properly appreciate the strength of the inventor's claims to adequate protection of law, the true nature of this understanding should be noticed. The inventor on his part actually has something in his possession which the public is destitute of. He has practically created it, and has it in his own possession, and under his own control, and he is not bound by his allegiance to the sovereignty, on any principle of patriotism, to surrender it; and he may of right disclose it, or not, as he pleases. He has of his own will and labor formed the combination of thoughts constituting the invention, and which are only to be embodied by mechanism, or mechanical action, to render it of great value. If he retain it, it will die with him, and the world will still remain without the advantages of it. But if he divulge it, the public will be enriched, the country honored, and mankind at large receive the benefit. At this point the public through the instrumentality of the Patent laws, propose an arrangement to secure the disclosure, and consequent benefit of his own invention. And what arrangement do they propose, and what does it offer as a consideration for this new and useful thing? Does it offer anything special—anything extraordinary?—No, far from it. He is offered barely protection in the right to use his own article, as his own property, for the term of fourteen years, and on condition that he will then surrender it to the public for the benefit of the world.—It is obvious, therefore, that the relative rights of the inventor and the public, established by the operation of the Patent Laws, is such as to make it greatly for the benefit of the latter.

The inventor is the party who adds something more to what previously existed; who has something of value to dispose of, which society has not. He imparts, and the public receives. He comes forth in his application for a patent, ladened with the rich fruits of his genius, the accumulation, perhaps, of many years of toil and deprivation, and makes a donation of it to the public, reserving to himself only, the right to it for fourteen years—and how small is this reservation, in comparison with what he confers upon society? He is to have barely the right of taxing the invention with a profit for this limited time, while society is to have the benefit, for all time to come How would the country resound with eulogistic applause, if like liberality were displayed by a citizen, in making to the public a like donation of lands, and money, accumulated by his own industry?

In view then of this relation between the inventor and the public, so beneficial to the latter, can any one doubt the justice and propriety of affording adequate protection to him, for the limited time specified; and should it not be the pride, and to the honor of every intelligent citizen, and every legislator, to tax his attention, and contribute his influence, in securing such protection. The more effectual this protection can be made, the greater will be the encouragement to the exercise of skill, and consequently the greater will be the public advantages derived from this source of wealth and improvement. And who can measure the magnitude of such advantages? Who can carry his thoughts far enough back, to find the period in which were performed their daily routine, without the productions of inventive genius? Who can so far divest himself of the refinement, and habits, engendered by the developements of genius, as to imagine himself in that state of helpless barbarism, from which his race has been raised, chiefly by the resistless power of the inventor's skill.

In the organization of the several Departments of our government, and the framing of laws for the proper carrying out of the trusts reposed in their several officers, the Legislative branch of our country, has been sadly at fault, in overlooking to a comparative great extent, until within a few years past, the rights of inventors, and their relation to the government, and not providing a suitable code of Laws, which shall at once protect them in the results of their genius and toil, brought about in many cases at the expense of long and anxious study, bodily health, and costly experiment, and have the effect to encourage, and stimulate invention, in the mechanic arts, and develope improvements in the various degrees and occupations of life, to keep pace with the co-extensive elements of civilization. These effects can only be produced by a manifestation on the part of Congress, through their laws, of a sympathy with inventors, and a desire to encourage their exertions, and otherwise assist them to the extent of their power, in the development of improvements, in arts, manufactures and science, and these objects can be attained, only by the passage of laws, affording a full governmental protection by Patent to the conceptions of Inventors, in the forms of new and useful mechanical constructions, combinations or arrangements, or other patentable differences, either of a mechanical, or chemical nature,—defining in terms, clear to the understanding of all. what shall constitute a patentable subject; and otherwise facilitate the progress of the useful arts, by discriminations in the selection of officers, to interpret and carry out the Laws, in accordance with their design.

The neglect of Congress to provide suitable laws for this purpose, has not arisen wholly from a non-appreciation on their part, of the important services rendered by Inventors, toward the mass of mankind, economy in the domestic affairs of the nation, and the other beneficial effects produced by the results of their thoughts, but is mainly attributable to ignorance of the many evils, to which the poor inventor, who may have wasted years of his life, in perfecting a valuable invention, is subjected. In the absence of information on the subject, from the proper source,—the inventors themselves—they seek for it from the Commissioner, and subordinate officers, of the Patent Office, who, being naturally desirous of possessing as much controlling influence, as they can, are apt to recommend the enactment of laws, augmenting their powers, and making the duties of their offices as congenial to their tastes and desires, as their comforts may suggest.

The mere fact of the passage of a law, by a Legislative body, for the avowed protection of an inventor's interest in an invention or discovery, is an acknowledgment on their part, that it, and all the benefits accruing therefrom, is his property, by as strong a right, as any other description of property is held, notwithstanding that law may fail, in fully accomplishing the object for which it was designed, and it is the duty of that body, in case of such failure, to pass a law, giving the projector of the invention, the same right of possession, and power of disposal, as is enjoyed by the owners of other acknowledged property, as well as to pass other laws, through which he can obtain legal authority to hold, and possess, this result of his thought as property, subject to the same restrictions and restraints, as other property, with as slight trouble and expense to himself, as the nature of the proceeding will admit of.

In view of this right, and with a laudable desire to render all necessary protection to inventors, in the offspring of their genius, Congress enacted a code of Patent Laws in 1836, repealing all other laws on the subject, in existence previous to that date, and subsequently, at different periods, viz. 1837, '39, '42 and '48, passed additional Bills, for the further protection and encouragement of Inventions in the useful arts, and in a manner amendatory of the laws passed at previous dates. It is to these laws, forming when combined, the compact or code, for the guidance of the Inventor, and the conferment of an exclusive privilege to him, in the invention or discovery, having an origination from himself, that I shall at once, without further preliminaries, turn my attention, and shall in my examination, take the several sections containing objectionable features and deficiencies, in the order in which they are arranged, except where two sections, in a manner relevant to each other, are situated out of the regular order of numerical progression.

The 6th section of the law of 1836, provides—"That any person or persons having "discovered or invented any new and useful "art, machine, manufacture, or composition "of matter, or any new and useful improve-"ment on any art, machine, manufacture, or "composition of matter, not known or used "by others before his or their discovery or "invention thereof, and not at the time of his "application for a patent, in public use or on "sale with his consent or allowance, as the "inventor or discoverer, and shall desire to "obtain an exclusive property therein, may "make application in writing to the Commissioner of Patents expressing such desire, "and the Commissioner on due proceedings "had, may grant a patent therefor."

This clause is indefinite, inasmuch as it does not define with sufficient clearness, what forms a patentable subject, but leaves the discriminating power of judgment, *ostensibly*, with the Commissioner of Patents, who cannot from the multifarious duties of his office, have time to examine one case out of fifty, but *in fact*, with the Board of Examiners, who under the powers granted them in the succeeding 7th section of the law, of the same date, on the ground that one invention, (tho' possessing advantages over another, and of course different in some particular, to produce such a result,) is substantially the same as the first; or because of a difference of opinion with the inventor on the question as to whether it really is an improvement on the original, reject the application for a patent for the difference forming the alleged improvement, and require the applicant, in case he is not satisfied with the decision, to appeal to the Chief Justice of the District Court in Washington, to decide the question between the respective parties at issue, which properly belongs to the mechanic arts, or chemistry, and should be left to those skilled in the art to which it appertains, and not to a Judge of Common Law, lacking the knowledge essential to the proper decision of a question in either of those branches of the arts.

(*To be Continued.*)

LITERARY NOTICES.

Autobiography of Henry C. Wright

This is a neat volume of 414 pages by the author of a Child, a Youth, a Man—the biography of Mr. Wright by himself. It is sold by Fowler & Wells, the well known publishers in Nassau st. this city. In looking over the pages of this work—reading a chapter here and a chapter there, one thing struck us most forcibly, viz. the spirit of the author, he must have a beautiful mind. This is our opinion, although in some things our ideas are very different from his. It is a book that no man can read without being benefitted.

The "Portland Transcript," a very excellent literary Journal, commences the 13th volume with a new dress, and makes an excellent appearance. The Transcript is very ably edited, and we regard it as one of our most interesting exchanges. We wish the proprietors success.

The May number of the Ladies National Magazine, has been sent us by the Publisher, C. J. Peterson, Philadelphia. The embellishments are "Coming from the Bath," which is very beautifully executed, the "Fashions for May" and "May Day in olden times" together with the usual variety of interesting matter by such popular authors as Mrs. Stevens, Mrs. Moreton, Mr. Peterson and Mr. Shelton. The Proprietors promise excellent serial Plates for July. Terms $2,00. Dewitt & Davenport, Agents, N. Y.

Sartain's Union for May is a superb number. It contains a splendid mezzotint, by Sartain, after a painting by Rothemel, of Ruth and Boaz, also "The Dove," by Rice, "Nazareth," by Devereaux, "Dan Tucker in Love," "A Tournament in Utopia," besides several others of sterling merit The literary contents are varied and interesting. Among the contributions we notice a capital article entitled 'English Characteristics,' from the pen of Mrs. Kirtland. We think with Prof. Hart (the editor) that the reader must be difficult to please who does not find something to suit his taste in this number. As a guarantee for this, it is only necessary to mention the names of Longfellow, Dr. Durbin, Herbert, Arthur, Mrs. Sigourney, and many other popular authors, as contributors.

This beautiful monthly can be found at Dewitt & Davenport's, Tribune Buildings.

THE BEST
Mechanical Paper
IN THE WORLD!
FOURTH YEAR OF THE

SCIENTIFIC AMERICAN!

416 Pages of most valuable information, illustrate with upwards of

500 MECHANICAL ENGRAVINGS!

☞The Scientific American differs entirely from the magazines and papers which flood the country, as it is a Weekly Journal of Art, Science and Mechanics, having for its object the advancement of the INTERESTS OF MECHANICS, MANUFACTURERS and INVENTORS Each number is illustrated with from five to TEN original ENGRAVINGS OF NEW MECHANICAL INVENTIONS, nearly all of the best inventions which are patented at Washington being illustrated in the Scientific American. It also contains a Weekly List of American Patents. notices of the progress of all Mechanical and Scientific Improvements; practical directions on the construction, management and use of all kinds of MACHINERY, TOOLS, &c. &c.

It is printed with clear type on beautiful paper, and being adapted to binding, the subscriber is possessed, at the end of the year, of a large volume of 416 pages, illustrated with upwards of 500 mechanical engravings.

TERMS: Single subscription, $2 a year in advance; $1 for six months. Those who wish to subscribe have only to enclose the amount in a letter, directed to MUNN & CO.
Publishers of the Scientific American,
128 Fulton street, New York.
All Letters must be Post Paid.

INDUCEMENTS FOR CLUBBING.

5 copies for	6 months		$4 00
5 "	12 "		$8 00
10 "	6 "		$7 50
10 "	12 "		$15 00
20 "	6 "		$15 00
20 "	12 "		$30 00

Southern and Western Money taken at par for subscriptions. Post Office Stamps taken at their full value.

A SPLENDID PRESENT!

To any person who will send us Three Subscribers, we will present a copy of the PATENT LAWS OF THE UNITED STATES, together with all the information relative to PATENT OFFICE BUSINESS, including full directions for taking out Patents, method of making the Specifications, Claims, Drawings, Models, buying, selling, and transfering Patent Rights, &c. This is a present of GREAT VALUE, yet may be obtained for nothing, by the reader of this prospectus, if he will take the trouble to get Three Subscribers to the Scientific American. It will be an easy matter to obtain two names besides his own.

MUNN & CO., Scientific American Office, N Y.

© 1849 SCIENTIFIC AMERICAN, INC